PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5 : B43L 15/00, A47B 13/08

A1

(11) International Publication Number: WO 93/21027

(43) International Publication Date: 28 October 1993 (28.10.93)

(21) International Application Number: PCT/US93/03881

(22) International Filing Date: 22 April 1993 (22.04.93)

(30) Priority data:
07/872,933 22 April 1992 (22.04.92) US

(60) Parent Application or Grant
(63) Related by Continuation
US 07/872,933 (CIP)
Filed on 22 April 1992 (22.04.92)

(71) Applicant *(for all designated States except US)*: HERMAN MILLER, INC. [US/US]; 8500 Byron Road, Zeeland, MI 49464 (US).

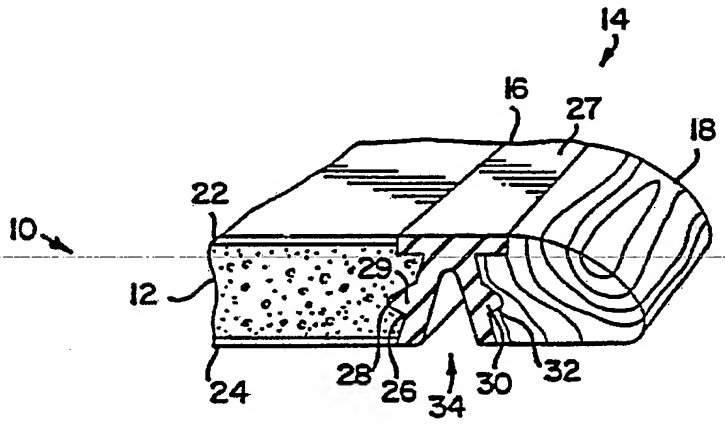
(72) Inventors; and
(75) Inventors/Applicants *(for US only)* : KELLEY, James, O. [US/US]; 19130 North Shore Drive, Spring Lake, MI 49456 (US). RUSTER, Lawrence, J. [US/US]; 819 Plainfield Court, Zeeland, MI 49464 (US). BECK, Robert, L. [US/US]; 8279 Port Sheldon Road, Zeeland, MI 49464 (US).

(74) Agent: PRENDERGAST, William, F.; Willian, Brinks, Olds, Hofer Gilson & Lione, NBC Tower, Suite 3600, 455 North Cityfront Plaza Drive, Chicago, IL 60611 (US).

(81) Designated States: CA, JP, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: WORK SURFACE WITH A FLEXIBLE EDGE



(57) Abstract

The invention is directed to a work surface (10) for use by a worker positioned adjacent the work surface. The work surface (10) includes a primary work section (12) having a top surface (22) a bottom surface (24), a front edge (26) adjacent the worker and an arm support member (14). The arm support member (14) is connected to the edge (26) of the primary work section (12) and extends outward therefrom in a direction toward the worker. At least a portion (16) of the arm support member is made from a resilient material, whereby the application of downward force by the worker's arms causes at least a portion (16) of the arm support member to bend downward to provide a comfortable support for a worker's arms resting thereon.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	FR	France	MR	Mauritania
AU	Australia	GA	Gabon	MW	Malawi
BB	Barbados	GB	United Kingdom	NL	Netherlands
BE	Belgium	GN	Guinea	NO	Norway
BF	Burkina Faso	GR	Greece	NZ	New Zealand
BG	Bulgaria	HU	Hungary	PL	Poland
BJ	Benin	IE	Ireland	PT	Portugal
BR	Brazil	IT	Italy	RO	Romania
CA	Canada	JP	Japan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo			SE	Sweden
CH	Switzerland	KR	Republic of Korea	SK	Slovak Republic
CI	Côte d'Ivoire	KZ	Kazakhstan	SN	Senegal
CM	Cameroon	LI	Liechtenstein	SU	Soviet Union
CS	Czechoslovakia	LK	Sri Lanka	TD	Chad
CZ	Czech Republic	LU	Luxembourg	TG	Togo
DE	Germany	MC	Monaco	UA	Ukraine
DK	Denmark	MG	Madagascar	US	United States of America
ES	Spain	ML	Mali	VN	Viet Nam
FI	Finland	MN	Mongolia		

WORK SURFACE WITH A FLEXIBLE EDGE

RELATED APPLICATIONS

This application is a continuation-in-part of U.S. Application Serial No. 07/872,933, filed on April 22, 1992, the entire disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

The present invention relates generally to work surfaces. More particularly, the invention relates to a work surface to which a flexible edge is secured to provide a more comfortable and ergonomic work surface.

Many occupations require support for the palm, forearm or elbow of a worker on the edge of a work surface. For example, people involved in telephone sales must often spend many hours resting an elbow or forearm on a rigid work surface. Similarly, people working with a computer on a work surface may spend many hours resting the base of their palms on a rigid work surface. It has been found that prolonged contact with a rigid work surface, aside from being uncomfortable, may also lead to repetitive strain injuries such as carpal tunnel syndrome, ulnar nerve entrapment and other nerve entrapment disorders.

Various structures have been employed to create a comfortable arm rest. For example, U.S. Patent No. 3,300,250 to R.W. Dollgener issued on January 24, 1967, discloses a cushioned support to be applied to the edge of a table or desk. The arm rest has a base member that is attached by an adhesive to the exposed surface of a table or bench. The base extends from a position above the work surface and overhangs the vertical edge of the table or bench. The base member may be comprised of aluminum or other suitable metal or plastic. A cushion of foam rubber or other suitable material is arranged over the arcuate

surface of the base member. A cover of pliable material extends over the surface of the cushion and is secured into grooves within the base member by extruded plastic strips.

SUMMARY OF THE INVENTION

This invention is directed to a work surface for use by a worker positioned adjacent the work surface. In accordance with one aspect of the invention, the work surface includes a primary work section having a top surface, a bottom surface, a front edge adjacent the worker and an arm support member. The arm support member is connected to the edge of the primary work section and extends outward therefrom in a direction toward the worker. At least a portion of the arm support member is made from a resilient material, whereby the application of downward force by the worker's arms causes at least a portion of the arm support member to bend downward to provide a comfortable support for a worker's arms resting thereon.

In a preferred embodiment of the invention, the arm support member is comprised of a resilient section and a rigid edge member. The resilient section has a downwardly directed groove that extends the length thereof. The groove provides the edge member with a larger range of motion.

In another preferred embodiment of the invention, the arm support member has an inflatable bladder and an inflation means. The inflation means acts to increase the pressure within the bladder whereby the stiffness and/or the shape of the arm support member may be adjusted to the particular requirements of a worker.

With the foregoing in mind, it is a feature and advantage of the present invention to provide a work surface having an improved support for the wrists, elbows, and forearms of user allowing for more comfortable posturing at the work surface. The present work surface provides a comfortable surface for those performing typing, writing or reading tasks. Moreover, it also an advantage of the present invention to provide a passive surface in case of accidental contact

with the surface.

In another aspect of this invention, the work surface is comprised of a primary work section and a resilient section. The primary work section has a top surface, an edge, and a slot extending inward from an edge of the primary work section. The slot should be sized to allow a wire and a plug to pass therethrough. The resilient section has an edge adapted to be connected to at least a portion of the edge of the primary work section. The resilient section further includes a recess cover portion substantially covering the slot of the primary work section. An aperture is defined by the recess cover portion and is sized to allow a wire to pass therethrough. Thus, a wire may pass through the aperture in the recess cover portion of the resilient section into the slot of the primary work section and down under the work surface, thereby providing a secure wire-holding assembly.

In a further aspect of the invention, an adjustable work surface is provided having a first work section, a second work section and a hinge member. The first work section has a top surface defining a plane, a bottom surface and a first edge. The second work section has a top surface defining a plane, a bottom surface and a first edge. The hinge member is connected to the first edge of the first work section and the first edge of the second work section. The hinge member is made from a resilient material in order to allow the first work section and the second work section to be angularly positioned relative to one another.

In still another aspect of the invention, an adjustable work surface is provided having a first work section, a second work section, a third work section, a first hinge member, and a second hinge member. The first work section has a top surface defining a plane, a bottom surface, a front edge adjacent the worker and a back edge. The second work section has a top surface defining a plane, a bottom surface, a first edge and a second edge. The third work section has a top surface defining a plane, a bottom surface and a first edge. The first hinge is connected to the back edge of the first work section and the first edge of the second work section. The second hinge section is connected to the second edge of

the second work section and the first edge of the third work section. The first and second hinges are made from a resilient material whereby the first work section, the second work section and the third work section may be angularly positioned relative to one another.

The present invention, together with attendant objects and advantages, will be best understood with reference to the detailed description below, read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a fragmentary perspective view in partial cross-section of the preferred embodiment of the invention with a work surface and a flexible arm support member.

FIGURE 2 is a fragmentary perspective view in partial cross-section of a second embodiment of the arm support member of this invention.

FIGURE 3 is a fragmentary perspective view in partial cross-section of a third embodiment of the arm support member of this invention.

FIGURE 4 is a fragmentary perspective view in partial cross-section of a fourth embodiment of the arm support member of this invention.

FIGURE 5 is a fragmentary perspective view in partial cross-section of a fifth embodiment of the arm support member of this invention.

FIGURE 6 is a fragmentary perspective view in partial cross-section of a sixth embodiment of the arm support member of this invention.

FIGURE 7 is a fragmentary perspective view in partial cross-section of a seventh embodiment of the arm support member of this invention.

FIGURE 8 is a fragmentary perspective view in partial cross-section of an eighth embodiment of the arm support member of this invention.

FIGURE 9 is a fragmentary perspective view in partial cross-section of a ninth embodiment of the arm support member of this invention.

FIGURE 10 is a fragmentary perspective view in partial cross-section of a tenth embodiment of the arm support member of this invention.

FIGURE 10A is a fragmentary perspective view in partial cross-section of the embodiment of FIGURE 10 shown on a primary work section having an irregularly shaped edge and having a support plate.

FIGURE 10B is a fragmentary perspective view in partial cross-section of the embodiment of FIGURE 10 shown on a primary work section having an adjustable stiffener member.

FIGURE 10C is a fragmentary perspective view in partial cross-section of the embodiment of FIGURE 10C taken along the lines 10C-10C.

FIGURE 10D is a fragmentary perspective view in partial cross-section of the another embodiment of FIGURE 10 shown on a primary work section having another embodiment of the adjustable stiffener member.

FIGURE 11 is a fragmentary perspective view of a corner member of an eleventh embodiment of the arm support member of this invention.

FIGURE 12 is a fragmentary perspective view of a twelfth embodiment of the arm support member of this invention.

FIGURE 13 is a fragmentary perspective view in partial cross-section of a thirteenth embodiment of the arm support member of this invention.

FIGURE 14 is a fragmentary perspective view of an arm support member and wire recess molding according to another aspect of this invention.

FIGURE 15 is a fragmentary perspective view in partial cross-section of a fourteenth embodiment of the arm support member of this invention.

FIGURE 16 is a perspective view of a work surface having a fifteenth embodiment of the arm support member of this invention.

FIGURE 17 is a perspective view of a work surface having a sixteenth embodiment of the arm support member of this invention.

FIGURE 18 is a perspective view of a work surface having a seventeenth embodiment of the arm support member of this invention.

FIGURE 19 is a perspective view of a work surface having an eighteenth embodiment of the arm support member of this invention.

FIGURE 20 is a perspective view of a work surface forming a

countertop having a nineteenth embodiment of the arm support member of this invention.

FIGURE 21 is a perspective view of a work surface forming a countertop having a twentieth embodiment of the arm support member of this invention.

FIGURE 22 is a perspective view of an adjustable multi-level work surface having a twenty-first embodiment of the arm support member of this invention.

FIGURE 23 is a perspective view of a multi-level work surface having a twenty-second embodiment of the arm support member of this invention.

FIGURE 24 is a fragmentary perspective view in partial cross-section of a twenty-third embodiment of the arm support member of this invention having an inflatable bladder shown partially inflated.

FIGURE 25 is a fragmentary perspective view in partial cross-section of the embodiment of FIGURE 24 shown having an inflated bladder.

FIGURE 26 is a cross-section of the embodiment of FIGURES 24-25 taken along the lines 26-26 of FIGURE 24.

FIGURE 27 is a cross-section of the embodiment of FIGURES 24-26 taken along the lines 27-27 of FIGURE 26.

FIGURE 28 is a fragmentary perspective view in partial cross-section of an edge member that may be used in combination with the arm support member of this invention.

FIGURE 29 is a perspective view of an adjustable work surface having two work sections and a twenty-fourth embodiment of the arm support member of this invention.

FIGURE 30 is a perspective view of an adjustable work surface in an angled position having three work sections and a twenty-fifth embodiment of the arm support member of this invention.

FIGURE 31 is a perspective view of the adjustable work surface shown in FIGURE 30 in a planar position.

FIGURE 32 is fragmentary perspective view of the adjustment mechanism of the adjustable work surface of FIGURES 30-31.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The work surface with a flexible edge of the present invention includes surfaces such as are found on desks, benches, tables, keyboard trays or other similar articles. The work surface is sized to allow a worker to use the surface with a work implement such as a computer, telephone, pen and paper or the like. Materials such as particle board with a high pressure laminate, wood, plastic, paper, metal or other similar materials may be used to construct the work surface.

FIGURE 1 shows a first embodiment of the work surface of the present invention. A work surface 10 includes a primary work section 12 and an arm support member 14 having a resilient section 16 and a rigid edge member 18. The primary work section 12 is the top of a desk or other similar work surface. Preferably, in this embodiment and the below described embodiments, the arm support member has a thickness approximately equal to the thickness of the primary work section. However, the actual thickness may be varied by correspondingly changing the materials used to make the arm support member. In particular, a stiffer material is necessary if the arm support member is decreased in thickness.

In the present embodiment, the primary work section 12 is composed of particle board with a top laminate section 22 defining a top substantially planar surface of the primary work section 12 and a bottom laminate section 24 defining a bottom substantially planar surface of the primary work section 12. The top laminate section 22 and the bottom laminate section 24 may be composed of materials such as wood, high pressure laminates such as formica or other materials.

The primary work section 12 has an edge 26 that is angled inward from the top laminate section 22 with a groove 28. Preferably, the resilient

section 16 is molded to the edge 26 of the primary work section 12 and runs therealong. However, the arm support member 14 may be attached to the edge 26 using many different methods of attachment known to those of ordinary skill in the art such as mechanical attachment using a screw, a bolt or the like. Moreover, the arm support member 14 may be removably attached to edge of a work section by using a releasable clamping mechanism or Velcro®. In the following embodiments, the arm support member may be attached using any of the above-described methods.

Preferably, the resilient section 16 is composed of a resilient, flexible material including rubber compounds, foams such as self-skinning foams, elastomers, plastics such as polyurethane, or other materials possessing similar properties. In the following embodiments, the resilient materials described above may be used. The top surface 27 of the resilient section 16 extends flush with the primary work section 12 and the edge member 18. The resilient section 16 has two outwardly and oppositely extending tongues 29 and 30. The tongue 29 mates with the groove 28 of the primary work section 12. The edge member 18 has a groove 32 that mates with tongue 30.

The resilient section 16 of this embodiment defines a downwardly-directed groove 34. The groove 34 is an inverted V-shape in cross-section and provides additional flexibility to the edge member 18. However, as will be seen in the below-described embodiments, it is recognized that various groove configurations may be used such as an inverted U-shape in cross-section, an inverted rectangular shape, a sawtooth shape, a multiple inverted U-shape in cross-section, or other similar configurations.

The edge member 18 projects outward from the resilient section 16 and runs therealong. The edge member 18 is composed of wood, although it is recognized that other materials may be used such as plastics, particle board with a laminate, extruded plastics or other materials known to those skilled in the art. The edge member 18 projects outward from a plane defined by the top laminate section 22 and slopes downward and slightly curves inward into the plane defined

by the bottom laminate section 24.

In operation, a worker adjacent the arm support member 14 of the work surface 10 would use the surface in conjunction with a work implement such as a computer, telephone, pen and paper or the like. As the worker used the work implement such as a computer keyboard placed on the primary work section 12, the base of his palm would create a downward force on the arm support member 14. Similarly, a worker using a telephone could rest his elbows on the arm support member 14 creating a downward force. In the present and below described embodiments, the arm support member 14 may also support other parts of the human body such as hands, forearms or wrists. In both of these situations, the arm support member 14 will deform to match a worker's elbows, hands, forearms or wrists thereby providing a more comfortable work surface as well as preventing nerve entrapment injuries. Upon removal of the worker's palm or elbow, the arm support member 14 will return to its original aesthetic appearance because of the resilient nature of the arm support member 14. Similarly, the embodiments of this invention disclosed in FIGURES 2-32 may be used in the same way.

FIGURE 2 shows a second embodiment of the work surface of the present invention. A work surface 40 includes a primary work section 42 and an arm support member 44 having a resilient section 46 and a rigid edge member 48. The primary work section 42 and the edge member 48 are shown constructed from wood, although other materials known to those skilled in the art are within the scope of this invention. The resilient section 46 has a top surface 50 or cover that extends over the top surface 52 of the primary work section 42 and the top surface 54 of the edge member 48. The resilient section 46 defines an inverted groove 56, U-shaped in cross-section. This embodiment offers the advantage of an entirely soft top surface.

FIGURE 3 shows a third embodiment of the work surface of the present invention. A work surface 60 includes a primary work section 62 and an arm support member 64 having a resilient section 66 and a rigid edge member 68.

The primary work section 62 is composed of particle board with a laminate 72 although other materials as discussed above are within the scope of this invention. The resilient section 66 extends along the edge 74 of the primary work section 62. The resilient section 66 has a top surface 78 or cover that extends from an edge 80 adjacent the laminate section 72 to slightly past the edge 82 of the edge member 68. Thus, the resilient section 66 covers a portion of the primary work section 62 and the upper surface of the edge member 68. The edge member 68 is composed of particle board, although other materials as discussed above may be used.

FIGURE 4 shows a fourth embodiment of the work surface according to the present invention. A work surface 90 includes a primary work section 92 and an arm support member 94 having a resilient section 96 and a rigid edge member 98. The primary work section 92 is composed of particle board with a high pressure laminate 102 although other materials as discussed above are within the scope of this invention. The resilient section 96 extends along the edge 104 of the primary work section 92. The resilient section 96 has two oppositely-extending tongues 100 that mate with corresponding grooves in the primary work section 92 and the edge member 98. The resilient section 96 has a top surface 102 that extends from an edge 104 of the top surface 102 over the upper surface 106 of the edge member 98. The top surface 102 of the resilient section 96 has longitudinally extending grooves 108 that provide a slip-free surface for a worker. The edge member 98 of this embodiment is composed of wood, although other materials as described above may be used.

FIGURE 5 shows a fifth embodiment of the work surface of this invention. A work surface 110 includes a primary work section 112 and an arm support member 114 having a resilient section 116 and a rigid edge member 118. In this embodiment, the primary work section 112 is composed of particle board with a laminate 122, although other materials as discussed above are within the scope of this invention. The resilient section 116 extends along the edge 124 of the primary work section 112. The resilient section 116 has a first tongue 126 that mates with a corresponding groove in the primary work section 112. A second

tongue 128 mates with a groove in the base of the edge member 118. The resilient section 116 has a top surface 130 that extends from an edge 132 of the laminate section 122 over a horizontal edge 134 of the edge member 118. The top surface 130 of the resilient section 116 has a series of closely-spaced longitudinally extending grooves 136 that provide a slip-free surface for a worker. The edge member 118 is composed of wood, although other materials as described above may be used.

FIGURE 6 shows a sixth embodiment of the work surface 140 according to the present invention. The work surface 140 includes a primary work section 142 and an arm support member 144 having a resilient section 146 and a rigid edge member 148. The primary work section 142 is composed of wood 150 with a top laminate section 152 and a bottom laminate section 154 although other materials as described above are within the scope of this invention. The primary work section 142 has an edge 156 which is connected to the resilient section 146. The resilient section 146 is molded to the edge 156 and runs therealong. Two outwardly and oppositely extending tongues 158 and 160 are defined by the resilient section 146. The tongue 158 mates with a corresponding groove in the primary work section 142. The tongue 160 mates with a corresponding groove in the edge member 148. The edge member 148 projects outward from the resilient section 146 and runs therealong. The edge member 148 runs from the plane defined by the top laminate section 152 of the primary work section 142 and slopes downward and slightly curves inward into the plane defined by the bottom laminate section 154 of the primary work section 142. The edge member 148 is composed of wood, although other materials as described above are within the scope of this invention.

FIGURE 7 shows a seventh embodiment of a work surface according to the present invention. A work surface 170 includes a primary work section 172 with an arm support member 174 having a resilient section 176 and a rigid edge member 178. The primary work section 172 is composed of wood 180 with a top laminate section 182 and a bottom laminate section 184, although other

materials as described above are within the scope of this invention. The primary work section 172 has an edge 186 which is connected to the resilient section 176. The resilient section 176 is molded to the edge 186 and runs therealong. Two outwardly and oppositely extending tongues 188 and 190 are defined by the resilient section 176. The tongue 188 mates with a corresponding groove in the primary work section 172. The tongue 190 mates with a corresponding groove in the edge member 178. The edge member 178 projects outward from the resilient section 176 and runs therealong. The edge member 178 curves downward from the plane defined by the top laminate section 182 of the primary work section 172 into the plane defined by the bottom laminate section 184 of the primary work section 172. The edge member 178 is composed of wood, although other materials as described above are within the scope of this invention.

FIGURE 8 shows an eighth embodiment of the work surface of the present invention. The work surface 200 includes a primary work section 202 with an arm support member 204 having a resilient section 206 and a rigid edge member 208. The primary work section 202 is composed of a particle board section 210 with a top laminate section 212 and a bottom laminate section 214, although other materials as described above are within the scope of this invention. The primary work section 202 has an edge 216 which is connected to the resilient section 206.

The resilient section 206 is preferably molded to the edge 216 and runs therealong. A tongue 218 of the resilient section 206 mates with a corresponding groove in the primary work section 202. A series of serrations 220 extend opposite the tongue 218 and mate with a series of serrations in the edge member 208. The edge member 208 extends from the resilient section 206 and runs therealong. The edge member 208 extends upwards and perpendicular to the top laminate section 212. After extending upwards approximately 20 cm, the edge member 208 slopes outward and downward. The edge member 208 is composed of plastic, although other materials as described above may be used. The edge member 208 of this configuration has particular usefulness in combination with a

computer keyboard. The height of the edge member 208 above the top surface 212 allows a worker to rest the base of his palm on the front surface 222 of the edge member 208 and have proper finger access to a keyboard.

FIGURE 9 shows a ninth embodiment of the work surface of the present invention. A work surface 230 includes a primary work section 232 with an arm support member 234 having a resilient section 236 and a rigid edge member 238. The primary work section 232 is composed of a particle board section 240 with a top laminate section 242 and a bottom laminate section 244, although materials as described above are within the scope of this invention. The primary work section 232 has an edge 246 which is connected to the resilient section 236. The resilient section 236 is molded to the edge 246 and runs therealong. A tongue 248 of the resilient section 236 mates with a corresponding groove in the primary work section 232. A series of serrations 250 extend opposite the tongue 248 and mate with a series of grooves in the edge member 238. The edge member 238 extends from and curves downward from the top surface 252 of the resilient section 236. The edge member 238 has a generally inverted U-shaped cross-section and is composed of a resilient material as described above.

FIGURE 10 shows a tenth embodiment of the work surface of this invention. A work surface 260 includes a primary work section 262 and an arm support member 264. The primary work section 262 may be formed from wood or other materials known to those skilled in the art. The primary work section 262 has a top surface 266, a bottom surface 268 and an edge 270. The top surface 266 is a substantially planar surface.

The arm support member 264 is molded onto the edge 270 and projects outward therefrom. The arm support member 264 slopes downward from a plane defined by the top surface 266 of the primary work section 262 and curves inward into the plane defined by the bottom surface 268 of the primary work section 262. The arm support member 264 projects outward a sufficient length to support the palm, forearm or the elbow of a worker positioned adjacent the arm

support member 264. For example, a width of approximately 4 inches and a thickness of approximately 1 inch are desirable dimensions. However, the arm support member 264 may be easily sized to the particular requirements of a user. Grooves 272 are located in the upper surface of the arm support member 264 to provide a decorative visual appearance. An upwardly projecting ridge may also be provided in the arm support member of this invention in order to prevent papers from slipping off the work surface. Preferably, the arm support member 264 is comprised of a resilient material as described above.

In the present embodiment, the arm support member 264 is connected to a flat edge 270 on the primary work section 262. However, as shown in the above-described embodiments, the arm support member may be attached to a wide variety of edge configurations. For example, FIGURE 10A shows the embodiment of FIGURE 10 with the primary work section 275 having an angled edge 276 attached to an arm support member 278. Moreover, if a material is choosen having a very low durometer, a support plate or stiffener 279 made from plastic or metal may be either molded into the arm support plate or separatly attached to the arm support member. By varying the relative durometer of the arm support and support plate, a wide range of flexability may be achieved.

FIGURES 10B and 10C show another embodiment of the present invention, wherein the resiliency of the arm support member can be adjusted. This embodiment includes at least one adjustment block 907 which is adapted to slide within the cavity 909 formed in the primary work surface 903 and the cavity 911 formed within the arm support member 905. The adjustment block 907 is preferably made from a rigid material, such as wood, metal or plastic. Alternatively, the adjustment block 907 is formed from a resilient material such as rubber or polyurethane, with the provision that the adjustment block is more stiff than the arm support member.

For maximum flexibility of the arm support member, the adjustment block 907 is pushed all the way back into the cavity 909 in the primary work surface. For maximum stiffness of the arm support member, the adjustment block

907 is pulled all the way forward into the cavity 911 of the arm support member. The position of the adjustment block 907 is locked in place. Preferably, this is accomplished by including an adjustment knob 913 which includes a threaded portion 917 which passes through a slot 915 in the primary work surface and into a threaded hole 919 in the adjustment block. To make an adjustment of the flexibility of the arm support member, the knob is loosened and the block is slid into the desired position. The knob is then tighten to maintain the block in that position.

FIGURE 10C shows the preferred embodiment wherein more than one adjustment block is used to adjust the arm support member. In particular, three blocks 911, 921 and 923 are included. In this way, the flexibility of the arm support member can be adjusted at these three positions to best accommodate the needs of a particular user. As shown, the block 921 is shown in the fully retracted position, thus giving maximum flexibility of the arm support member at that location. The block 923 is shown in its fully extended position to thereby give the maximum stiffness to the arm support member at that location. The block 911 is shown extended about halfway.

In the alternative embodiment shown in FIGURE 10D, there is only a single adjustment block 931, which is wider than those shown in Figure 10B. In this embodiment, the single adjustment block 931 is used to adjust the flexibility of the entire arm support member 934. Also, because of its increase width, this embodiment uses more than one adjustment knob to secure its position.

FIGURE 11 shows an eleventh embodiment of the work surface of the present invention. A work surface 280 includes a primary work section 282 and an arm support member 284 having a resilient section 286 and a rigid edge member 288. The primary work section 282 may be formed from wood or other materials known to those skilled in the art. The primary work section 282 has a curved edge 290 which is connected to the resilient section 286. The resilient section 286 is molded to the edge 290 and runs therealong. The edge member 288 is connected to the resilient section 286. The edge member 288 is curved in order

to be securely bonded to the resilient section 286. Although the edge member 288 is composed of wood, other materials as described above are within the scope of this invention.

FIGURE 12 shows a twelfth embodiment of the work surface of the present invention. A work surface 300 includes a primary work section 302 and an arm support member 304 having a resilient section 306, a first rigid edge member 308 and a second rigid edge member 310. The primary work section 302 has a first edge 312 and a second edge 314. The primary work section 302 may be formed from wood or other materials known to those skilled in the art. The resilient section 306 interconnects the first edge member 308 to the first edge 312 of the primary work section 302. Similarly, the resilient section 306 interconnects the second edge member 310 to the second edge 314 of the primary work section 302. The resilient section 306 has a corner section 316 adapted to interconnect the first edge member 308 and the second edge member 310. The corner 316 has an accordion shape to allow the first edge member 308 to be directed downward by a worker without affecting the positioning of the second edge member 310. The edge members 308 and 310 may be constructed from wood or other suitable materials known to those skilled in the art.

FIGURE 13 shows a thirteenth embodiment of the work surface of the present invention. A work surface 320 includes a primary work section 322 and an arm support member 324. The arm support member 324 has a resilient section 326 and a middle section 328 and an end section 330. The primary work section 322 is interconnected to the middle section 328 by a first portion 332 of the resilient section 326. The middle section 328 is interconnected to the end section 330 by a second portion 334 of the resilient section 326. The resilient section 326 has a top surface 336 that extends from the edge of a laminate 338 of the primary work section 322 over the middle section 328 to cover the upper surface 340 of the end section 330. The first portion 332 of the resilient section 326 and the second portion 334 of the resilient section 326 both have inverted U-shaped grooves 342 and 344 in cross-section. The primary work section 322 is

made from particle board and a laminate, although other materials as described above are within the scope of this invention. Similarly, the middle section 328 and the end section 330 are made from wood, although other materials should be considered within the scope of this disclosure. The work surface 320 of this embodiment is particularly useful when a greater flexibility at the edge of the work surface is necessary.

FIGURE 14 shows an embodiment of the work surface of this invention wherein a wire access channel is provided. A work surface 350 is composed of a primary work section 352 and an arm support member 354. The primary work section 352 has a laminate top surface 356, an edge 358 and a slot 360. The slot 360 is of sufficient size to allow an electrical wire to pass therethrough. The arm support member 354 is bonded onto the edge 358 of the primary work section 352. The arm support member 354 has a recess cover portion 362 that extends into the slot 360. The recess cover portion 362 defines an aperture 364 of sufficient size to allow a wire to pass therethrough. A slit 366 extends outward from the aperture 364 to allow a wire (not shown) and a plug to be inserted therethrough with the wire being held securely within the aperture 364. The primary work section 352 of this embodiment is made from particle board with a laminate, although other materials as described above are within the scope of this invention. The arm support member 354 is made from a resilient material as described above.

FIGURE 15 shows a fourteenth embodiment of the work surface of the present invention. The work surface 370 includes a primary work section 372 and an arm support member 374. The primary work section 372 may be formed from wood or other materials known to those of ordinary skill in the art.

The arm support member 374 is connected to an edge 376 of the primary work section 372. In the present embodiment, the arm support member 374 may be made entirely from a resilient material as described above. However, because the arm support member 374 is relatively thin (0.25 inches), a relatively high durometer material such as a foam or elastomer can be used. A foam

backing may also be used with the present embodiment. There is a general relationship between the thickness of the arm support member and the resiliency of the material used. Accordingly, if the thickness of the arm support member is reduced, a material having less resiliency can be used. Similiarly, a foam backing can be used to increase the stiffness of the arm support member.

FIGURE 16 shows a fifteenth embodiment of the work surface of the present invention. The work surface 380 includes a primary work section 382 and an arm support member 384. The primary work section 382 has a generally horizontally extending square shaped surface with a first edge 386 having an arcuate shape. A second edge 388 and a third edge 389 run generally perpendicular to one another and are interconnected by the first edge 386. The primary work section 382 may be formed from wood or other materials known to those of ordinary skill in the art.

The arm support member 384 is connected to the first edge 386 and runs therealong. Accordingly, the arm support member 384 also forms a generally arcuate shape in a horizontal plane. In the present embodiment, the arm support member 384 may be made either entirely or partially from a resilient material as described above.

FIGURE 17 shows a sixteenth embodiment of the work surface of the present invention. The work surface 390 includes a primary work section 392 and an arm support member 394. The primary work section 392 has a generally a horizontally extending rectangular surface with a side 393. The primary work section 392 has a first edge 396 extending less than the length of the side 393. A second edge 398 runs parallel to the first edge 396. A rectangular slot 400 extends inward from the second edge 398. The slot 400 is sized to accept a computer monitor (not shown). The computer monitor may be fixedly, or movably secured within the slot 400. The primary work section 392 may be formed from wood or other materials known to those of ordinary skill in the art.

The arm support member 394 is connected to the first edge 396 and extends into the primary work section 392. The arm support member 394 may be

made entirely from a resilient material as described above.

FIGURE 18 shows a seventeenth embodiment of the work surface of the present invention. The work surface 410 includes a primary work section 412 and an arm support member 414. The primary work section 412 has a generally horizontally extending rectangularly shaped surface with a first edge 416 forming one side thereof. The primary work section 412 may be formed from wood or other materials known to those of ordinary skill in the art. The arm support member 414 is connected to the first edge 416 and runs therealong. The arm support member 414 has a downwardly directed upper surface 418. The arm support member 414 may be made either entirely or partially from a resilient material as described above. A conventional support structure 420 supports the work surface 410.

FIGURE 19 shows a perspective view of an eighteenth embodiment of the work surface of the present invention for use as a conference table. The work surface 430 includes a primary work section 432 and an arm support member 434. The primary work section 432 has a generally rectangularly shaped portion 436 with a circular end portion 438. The primary work section 432 has a first edge 440 having a first linear portion 442, a second linear portion 444, and a circular portion 446 interconnecting the first portion 442 and the second portion 444. The first linear portion 442 and the second linear portion 444 run parallel to one another. A second edge 448 is fixedly secured to a wall 450 by conventional mechanisms known to those of ordinary skill in the art. A post 452 extending upward from the floor further supports the work surface 430 in a horizontal plane. The primary work section 432 may be formed from wood or other materials known to those of ordinary skill in the art.

The arm support member 434 is connected to the first edge 440 and extends therealong. The arm support member 434 may be made either entirely or partially from a resilient material as described above.

FIGURE 20 shows a perspective view of a nineteenth embodiment of the work surface of the present invention for use as a counter. The work

surface 460 includes a primary work section 462, two secondary work sections 464 and an arm support member 466. The secondary work sections 464 extend generally perpendicular to one another and are interconnected by the primary work section 462. The edge 468 extends along secondary edges 470 of the secondary work section 464 and a primary work section front edge 472 to form a generally arcuate shape. The primary work section 462 and the secondary work sections 464 are fixedly attached to a wall 474 by a conventional support structure known to those of ordinary skill in the art. The primary work section 462 and the secondary work sections 464 may be formed from wood or other materials known to those of ordinary skill in the art. The arm support member 466 is connected to the edge 468 and extends therealong. The arm support member 466 may be made either entirely or partially from a resilient material as described above.

FIGURE 21 shows a perspective view of a twentieth embodiment of the work surface of the present invention for use as a counter. The work surface 480 includes a primary work section 482, two secondary work sections 484 and an arm support member 486. The secondary work sections 484 extend generally perpendicular to one another and are interconnected by the primary work section 482. The edge 488 extends along the secondary edges 490 of the secondary work sections 484 and a primary work section front edge 492. While the secondary edges 490 have a generally linear shape, the primary work section edge 492 has a deep C-shaped curve or pocket formed therein. The primary work section 482 and the secondary work sections 484 are fixedly attached to a wall 494 by a conventional support structure known to those of ordinary skill in the art. The primary work section 482 and the secondary work sections 484 may be formed from wood or other materials known to those of ordinary skill in the art. The arm support member 486 is connected to the edge 488 and extends therealong. The arm support member 486 may be made either entirely or partially from a resilient material as described above.

FIGURE 22 shows a perspective view of a twenty-first embodiment of the work surface of the present invention. In the present embodiment, the work

surface 600 is adjustable and has multiple levels. A first work surface 602 has a primary work section 604 and an arm support member 606. The primary work section 604 has a generally horizontally extending surface having an arcuate shaped front edge 608 and back and side edges 610 forming a curved pocket therein. The primary work section 604 is sized to support a keyboard thereon although the primary work section 604 could be sized for use with a wide variety of work implements.

The arm support member 606 is at least connected to the front edge 608 and may extend around the back and side edges 610. The arm support member 606 has an uneven thickness that creates a soft pocket or contour 612 generally following the shape of the front edge 608 of the primary work section 604. A worker may be positioned within the contour 612 when using the work surface 600. In particular, the contour 612 allows a worker to comfortably rest his elbows on the arm support member 606. The arm support member 606 may be made entirely from a resilient material as described above.

A second work surface 620 is connected to the first work surface 602 by a conventional keyboard support mechanism 630. The second work surface 620 is sized to support a computer monitor. Both the primary work section 604 and the second work surface 620 may be formed from wood or other materials known to those of ordinary skill in the art.

The first work surface 602 is movable both laterally and vertically. The first work surface 602 is movable in a lateral direction by the action of a conventional keyboard support mechanism 630. The support mechanism 630 is attached to a second work surface 620 in order to provide for movement of the first work surface 602 relative to the second work surface 620. The laterally adjustable support mechanism 630 may be those known to ordinary skill in the art to provide for the lateral movement of keyboard trays and the like.

The second work surface 620 also has a conventional vertically movable support column 640 attached thereto. Accordingly, the first work surface 602 is also vertically movable. The support column 640 provides for the vertical

adjustment of the second work surface 620 and the attached first work surface 602. A wide variety of vertically adjustable support mechanisms such as mechanical spring cylinders, pneumatic cylinders, mechanical or motorized rack-and-pinion type mechanisms and other support mechanisms known to those of ordinary skill in the art may be used to vertically adjust the work surface 600. Furthermore, the support mechanisms shown in U.S. Patent No. 3,285,207 to Heinz-Gunter Muller Vom Hagen and in U.S. Patent No. 4,381,714 to Henneberg et al., the disclosures of which are incorporated herein, may be easily configured to adjust the height of the work surface 600.

FIGURE 23 shows a perspective view of a twenty-second embodiment of the work surface of the present invention. In the present embodiment, the work surface 650 has multiple levels. A first work surface 652 has a primary work section 654 and an arm support member 656. The primary work section 654 has a generally horizontally extending surface having an arcuate shaped front edge 658 and back and side edges 660 forming an angled pocket therein. The primary work section 654 is sized to support a keyboard thereon. However, the primary work section 654 could also be sized for use with a wide variety of work implements as described above.

The arm support member 656 is at least connected to the front edge 658 and may extend around the back and side edges 610. The arm support member 656 has an uneven thickness that creates an angled pocket or contour 662. A worker may be positioned within the contour 662 when using the work surface 650. In particular, the contour 662 allows a worker to comfortably rest his elbows on the arm support member 656. The arm support member 656 may be made entirely from a resilient material as described above.

The first work surface 652 is fixedly secured to the second work surface 670 by conventional bracket or the like. However, the second work surface 670 may also be connected to the first work surface 652 by a movable keyboard support mechanism. The second work surface 670 is sized to support a computer monitor thereon. A third work surface 672 is fixedly attached above the

second work surface 670. The third work surface 672 has two separated portions that would partially enclose a computer monitor resting on the second work surface 670. Both the second work surface 670 and third work surface 672 are connected to base wall 680 by conventional support brackets or similar mounting methods. The primary work section 654, the second work surface 670 and third work surface 672 may be formed from wood or other materials known to those of ordinary skill in the art.

FIGURES 24-27 show a twenty-third embodiment of the work surface of this invention having an inflatable bladder. A work surface 675 includes a primary work section 676 and arm support member 677 having an inflatable bladder 678. The primary work section 676 has an irregularly shaped edge 679 attached to the arm support member 677. A support plate 679 extends beneath the bladder 678. The support plate 679 is attached to the primary work section 676 by a screw. The support plate made from one piece or two separate pieces joined togeather. Materials such as plastics or metals may be used to form the support plate.

The arm support member 677 is attached to the edge 679 and projects outward a sufficient length to support the palm, forearm or elbow of a worker positioned adjacent the support member 677. As best shown in FIGURES 26-27, the arm support member 677 is formed having a bladder 678 and a smaller secondary bladder 680. The secondary bladder 680 acts to inflate the bladder 678 as described below. Ridges or other markings may be provided on the exterior surface of the arm support member 677 thereby indicating the location of the secondary bladder 680. An inlet valve 681 acts to open and close the inlet channel 682 which provides access to an exterior fluid source such as air. However, it is within the scope of this invention to also use conventional liquids. The inlet valve 681 is made from a ball bearing 683 and a spring 684.

An interior valve 685 is adjacent an interior channel 686 that connects the secondary bladder 680 to the bladder 678. The interior valve 685 is also made from a ball bearing 687 and a spring 688. In both the inlet valve 681

and interior valve 685, the spring forces the ball bearing against the opening in the channel to thereby seal the channel.

A deflation valve 690 is attached to a bottom surface 691 of the arm support 677. The deflation valve 690 allows a fluid to pass from the bladder 678 thereby decreasing the pressure therein. A spring 692 forces the angled stop member 693 to securely fit within the sides of the deflation channel 694.

The arm support member 677 of the present embodiment is preferably molded from a resilient material such as an elastomer. However, other materials including foams, plastics and rubber compounds may also be used. In the molding process, an access portion should be formed to allow for the placement of the inlet valve 681, the interior valve 685 and the deflation valve 690. The access portion should then be sealed by conventional methods such as bonding or heat sealing.

In operation, a worker adjacent the work surface 675 adjusts the stiffness and shape of the arm support member 677 by inflating the bladder 678. By depressing the arm support member 677 above the secondary bladder 680, the secondary bladder 680 is compressed forcing a fluid such as air into the bladder 678. In particular, the pressure within the secondary bladder 680 overcomes the force created by the spring 688 pressing against the ball bearing 686. Accordingly, the ball bearing 686 is pushed back to allow the fluid to pass through the interior channel 686 into the bladder 678. Because the fluid is forced into the bladder 678, the pressure within the bladder 678 increases thereby increasing the stiffness of the arm support member 677. After the worker releases the pressure on the secondary bladder 680, the secondary bladder 680 fills with the fluid from an external fluid source. In particular, the internal pressure within the secondary bladder 680 creates a suction pulling the external fluid through the inlet channel 682 and past the inlet valve 681. If desired, a worker could continue to raise the pressure within the bladder 678 until the shape of the arm support member 677 is deformed as shown in FIGURE 25.

As for deflation, by pushing upward on the deflation valve 690, the

angled neck portion of the stop member 693 is disengaged from the sides of the deflation channel 694 thereby allowing fluid to escape the bladder 678. An open cell foam may be placed inside the bladder 678 to prevent the collapse of the bladder when the fluid is released from the bladder 678.

It should be recognized that a variety of inflation mechanisms could be used. In particular, a completely separate inflation mechanism such as an external secondary bladder could be used to increase the pressure within the primary bladder. Moreover, it should be also be recognized that the arm support member 677 may be contructed in such a manner that the resiliency of the arm support member 677 and the shape of the arm support member 677 may be separately or jointly adjustable. The arm support 677 may also be constructed to allow for a wide variety of changes in shape.

FIGURE 28 shows a safety edge member that may be used in combination with the work surface of the present invention when adjacent a secondary work surface. The work surface 695 includes a primary work section 696 having a safety edge member 697 molded thereto. The primary work section 696 has side edges 698 having an irregular cutout with the safety edge 697 attached thereto. The safety edge 697 has a relatively thin (approximately 0.25 inches) outwardly extending portion 698. In general, materials such as rubber compounds, foams, elastomers, plastics or other materials possessing similar properties may be used to manufacture the safety edge 697.

The safety edge 697 functions to protects a worker's fingers when the work surface 695 is movable relative to a secondary work surface 699. If a worker's fingers were resting over an edge 700 of the secondary work surface when the work section 695 was being moved relative to the secondary work surface 699, the worker's fingers would not risk injury because of the resilient nature of the safety edge 697. In particular, as shown in shadow in FIGURE 28, the safety edge 697 would bend rather than directly hit the fingers of the worker. Moreover, the safety edge 697 provides for an increased work surface area.

FIGURE 29 shows a perspective view of a twenty-fourth

embodiment of the work surface of the present invention. The adjustable work surface 701 has a first work section 702 and a second work section 704 interconnected by a flexible hinge 706. The first work section 702 and the second work section 704 are angularly adjustable relative to one another. Accordingly, the work surface 701 may be used with a computer to allow for the relative adjustment of a keyboard and a monitor. Alternatively, the work surface 701 may be used while in a planar position.

The first work section 702 has a generally trapezoid-like shape and is sized to support a keyboard thereon. The first work section 702 has a first edge 710 having two curved end portions 712 interconnected by a linear portion 714. The second work section 704 has a generally triangular shape and is sized to support a computer monitor thereon. Both the first work section 702 and the second work section 704 may be formed from wood or other materials known to those of ordinary skill in the art.

An arm support member 720 is connected to the edge 712 of the first work section 702 and extends therealong. The arm support member 720 has a first curved end portion, a second curved end portion and a linear intermediate portion extending between the first end portion and the second end portion. The arm support member 720 may be made entirely or partially from a resilient material as described above.

A flexible hinge 706 is connected to a second edge 722 of the first work surface 702 and a first edge 724 of the second work surface 704. The hinge 706 is molded onto the first work surface 702 and the second work surface 704. A downwardly directed groove, as shown in FIGURES 1-3 and 13 may be provided in order to give the hinge greater flexibility. Apertures 730 may also be provided to allow a wire to pass therethrough. The apertures may also be located adjacent an outer edge of the hinge with a slit extending from the aperture to the outer edge. The hinge 706 is made from a resilient material as described above.

Conventional support apparatus known to those of ordinary skill in the art may be used to support the work surface 701. For example, the first work

surface 702 could be fixedly secured to an adjacent wall. A rod having a threaded portion and a handle would be attached to the lower surface of the first work surface 702 and the second work surface 704. A stationary swivel bearing would secure the end of the rod having the handle to the lower surface of the first work surface 702. A swivel nut assembly having at least one groove would secure the threaded portion of the rod to the lower surface of the second work surface 704. A worker could rotate the handle thereby rotating the rod. Accordingly, depending upon the rotation of the rod, the second work surface is tilted up or down relative to the first work surface 702 as the threaded portion of the rod rotates through the swivel nut assembly.

FIGURES 30-31 show an adjustable work surface having a twenty-fourth embodiment of the work surface of the present invention. The adjustable work surface 800 has a first work section 802 and a second work section 804 interconnected by a first flexible hinge 806. The work surface 800 further includes a third work section 810 interconnected to the second work section 804 by a second flexible hinge 812. The first work section 802, the second work section 804 and the third work section 810 are angularly adjustable relative to one another. Accordingly, the work surface 800 may be used with a computer to allow for the relative adjustment of a keyboard and a monitor on the first work section 802 and the third work section 810 respectively. Moreover, the second work surface 804 may provide support for reading or typing materials. Alternatively, the work surface 800 may be used while in a planar position as shown in FIGURE 31.

The first work section 802, the second work section 804 and the third work section 810 have a generally rectangular shape. The first work section 802 has a slightly curved first edge 820 and an opposite linear second edge 822. The second work section 804 has a linear first edge 830 and a parallel second edge 832. The second work section 804 is slightly smaller than the first work section 802. The third work section 810 is slightly larger than the first work section 802 and has a linear first edge 840. The first work section 802, the second work

section 804 and the third work section 810 may be formed from wood or other materials known to those of ordinary skill in art.

An arm support member 850 is connected to the edge 820 of the first work section 802 and extends therealong. The arm support member 850 has an uneven thickness that creates an angled pocket or contour 852. However, the arm support member 850 may also form a curved pocket as well. A worker may be positioned within the contour 852 when using the work surface 800. In particular, the contour 852 allows a worker to comfortably rest his elbows on the arm support member 800. The arm support member 850 may be made entirely from a resilient material as described above.

The first hinge 806 is connected to a second edge 822 of the first work section 802 and a first edge 830 of the second work section 804. The second hinge 812 is connected to the second edge 832 of the second work section 804 and the first edge 840 of the third work section 810. Both hinges 806 and 812 are molded onto their corresponding work sections. Moreover, the hinges 806 and 812 are made from a resilient material as described above.

A downwardly directed groove 860 may be provided in order to give the hinges 806 and 812 greater flexibility. The groove may be shaped similar to the grooves shown in FIGURES 1-3 and 13. Apertures may also be provided to allow a wire to pass through the hinges 806 and 812. The apertures may also be located adjacent an outer edge of the hinge with a slit extending from the aperture to the outer edge.

FIGURE 32 shows a fragmentary perspective view of a conventional adjustment mechanism for use with the adjustable work surface of FIGURES 29-31. A wheel 860 having a gear 862 is rotatable by a worker in order to provide for the adjustment of the work surface. A drive gear 862 fits within the wheel 860 and rotates therewith. The drive gear 862 translates the rotation of the wheel 860 into rotation of the rod 866. A first bevel gear 868 extends from the end of the rod 866 opposite the drive gear 862. A second bevel gear 870 mates at a 90 degree angle with the first bevel gear 868. A worm gear

872 extends from the second bevel gear 870 and mates with axial cylinder gear 880. The rotation of the axial cylinder 880 causes the rotation of the shaft 882 and the clevis 884. The clevis 884 is attached by a support bracket 886 and a mounting plate 888 to the work surface 890. Accordingly, the rotation of wheel 860 is translated through the gearing mechanism shown into an upward or downward movement of the work section 890. Similar, co-axial mechanisms may be used to provide for the adjustment of additional work sections. Moveover, other conventional mechanical and motorized adjustment mechanisms known to those of ordinary skill in the art may be used.

The embodiments described above are illustrative and not restrictive. The scope of the invention is indicated by the claims rather than by the foregoing description. The invention may be embodied in other specific forms without departing from the spirit of the invention. Accordingly, all changes which come within the scope of the claims are intended to be embraced therein.

WE CLAIM:

1. A work surface for use by a worker positioned adjacent the work surface comprising:

a primary work section having a top surface, a bottom surface and a front edge adjacent the worker; and

an arm support member connected to the front edge of the primary work section and extending outward therefrom in a direction toward the worker, at least a portion of the arm support member being made from a resilient material, whereby the application of downward force by the worker's arms causes at least a portion of the arm support member to bend downward to thereby provide a comfortable support for a worker's arms resting thereon.

2. The work surface of claim 1 wherein the arm support member comprises a rigid edge member and a resilient section between the rigid edge member and the front edge of the primary work section, whereby the resilient section allows downward movement of the rigid edge member relative to the primary work section when downward force is applied by the worker's arms.

3. The work surface of claim 2 wherein the resilient section extends over a surface portion of both the primary work section and the rigid edge member.

4. The work surface of claim 2 wherein the rigid edge member

includes a first section adjacent to the resilient portion which extends upward in a plane generally perpendicular to the top surface of the primary work section, and a second section adjacent to the first section which slopes outward and downward from a position above the plane of the top surface of the primary work section.

5. The work surface of claim 2 wherein the rigid edge member curves downwardly from the plane defined by the top surface of the primary work section, the rigid edge member having an inverted generally U-shaped cross-section.

6. The work surface of claim 2 wherein the primary work section has a curved edge and the rigid edge member is curved to correspond to said curved edge of the primary work section.

7. The work surface of claim 2 wherein the rigid edge member slopes downward from the plane of the top surface of the primary work section to the plane of the bottom surface of the primary work section.

8. The work surface of claim 7 wherein the resilient section extends over at least a portion of the top surface of the primary work section and at least a portion of the rigid edge member.

9. The work surface of claim 8 wherein the resilient section has a

downwardly directed groove that extends the length of the resilient section.

10. The work surface of claim 9 wherein the groove has an inverted V-shape in cross-section.

11. The work surface of claim 9 wherein the groove has an inverted U-shape in cross-section.

12. The work surface of claim 2 wherein the rigid edge member curves downward from the plane defined by the top surface of the primary work section to a plane defined by the bottom surface of the primary work section.

13. The work surface of claim 12 wherein the resilient section extends over at least a portion of the top surface of the primary work section and at least a portion of the rigid edge member.

14. The work surface of claim 1 wherein the arm support member comprises a plurality of intermediate rigid sections, an outermost end rigid edge and a plurality of resilient sections, one of the resilient sections interconnecting the end rigid edge and one of the intermediate rigid sections and one of the resilient section connecting one of the intermediate rigid section to the front edge.

15. The work surface of claim 14 wherein at least one resilient section

has a downwardly directed groove that extends the length of the resilient section.

16. The work surface of claim 15 wherein the groove has an inverted U-shape in cross-section.

17. The work surface of claim 14 wherein at least one resilient section extends over at least a portion of the top surface of the primary work section and at least a portion of the intermediate rigid section.

18. The work surface of claim 1 wherein the arm support member is removably fastened to the primary work section.

19. The work surface of claim 1 wherein the arm support member is made entirely from a resilient material.

20. The work surface of claim 19 wherein the front edge of the primary work section and the arm support member have a generally arcuate shape in a horizontal plane.

21. The work surface of claim 19 wherein the primary work section has a generally square shape with an arcuate cutout therein.

22. The work surface of claim 1 wherein the front edge has a length

less than a side of the primary work section.

23. The work surface of claim 22 wherein the primary work section forms a generally rectangular shape.

24. The work surface of claim 19 wherein the arm support member has a downwardly angled top surface.

25. The work surface of claim 19 wherein primary work section has a generally rectangular shape and the front edge forms one side thereof.

26. The work surface of claim 1 further comprising two secondary work sections each having a secondary edge, the secondary work sections extending generally perpendicular to one another and being interconnected by the primary work section; the secondary edges being interconnected by the front edge of the primary work section with arm support member running therealong.

27. The work surface of claim 26 wherein the front edge of the primary work section and the arm support member have a generally arcuate shape in a horizontal plane.

28. The work surface of claim 26 wherein the arm support member forms a curved pocket in which a worker may be positioned.

29. A work surface for use by a worker positioned adjacent the work surface comprising:

a primary work section having a top surface, a bottom surface and a front edge adjacent the worker; and

an arm support member connected to the front edge of the primary work section and extending outward therefrom in a direction toward the worker, at least a portion of the arm support member being made from a resilient material, the arm support member forming a pocket in which a worker may be positioned whereby the application of downward force by the worker's wrists or elbows causes at least a portion of the arm support member to bend downward to provide a comfortable support for a worker's wrists or elbows resting thereon.

30. The first work surface of claim 29 wherein the arm support member has an uneven profile.

31. The work surface of claim 29 wherein the primary work section is movable laterally and is sized to support a keyboard.

32. The work surface of claim 31 further comprising a second work surface connected to the work surface, the work surface extending generally parallel and beneath the second work surface.

33. The work surface of claim 32 wherein the second work surface is

movable vertically and is sized to support a computer monitor.

34. The work surface of claim 33 further comprising a third work surface connected to the second work surface, the third work surface being extending generally parallel and above the second work surface.

35. A work surface comprising:

a primary work section having a top surface defining a plane and a bottom surface defining a plane, the primary work section having an front edge and a slot extending inward from the front edge of the primary work section, the slot being of sufficient size to allow a wire and plug to pass therethrough; and

a resilient section including an front edge portion connected to at least a portion of the front edge of the primary work section, the resilient section having a recess cover portion substantially covering the slot of the primary work section, the recess portion of the resilient section defining an aperture of sufficient size to allow a wire to pass therethrough whereby a wire may pass through the aperture in the recess cover portion of the resilient section into the slot of the primary work section and down under the work surface thereby providing a secure wire holding assembly.

36. The work surface of claim 35 wherein the recess cover portion of the resilient section defines a slit extending from the aperture to the front edge of the work surface whereby the wire may pass through the slit to be secured within

the aperture.

37. The work surface of claim 35 wherein the resilient section covers a surface portion of the top surface of the primary work section.

38. An adjustable work surface for use by a worker comprising:

a first work section having a top surface defining a plane, a bottom surface and a first edge adjacent the worker;

a second work section having a top surface defining a plane, a bottom surface and a first edge; and

a hinge member connected to the first edge of the first work section and the first edge of the second work section, the hinge being made from a resilient material whereby the first work section and the second work section may be angularly positioned relative to one another.

39. The work surface of claim 38 wherein the hinge has a downwardly directed groove that extends the length of the hinge.

40. The work surface of claim 39 wherein the hinge has an aperture sized to allow a wire to pass therethrough.

41. The work surface of claim 40 wherein the hinge section has an aperture located adjacent an outer edge of the hinge and a slit extending from the

aperture to the outer edge and wherein the aperture is sized to allow a wire pass therethrough.

42. The work surface of claim 41 further comprising an arm support member connected to a front edge of the first work section adjacent the worker and extending outward therefrom in a direction toward the worker, at least a portion of the arm support member being made from a resilient material.

43. The work surface of claim 42 wherein the arm support member has a first curved end portion, a second curved end portion and a linear intermediate portion extending between the first end portion and the second end portion.

44. The work surface of claim 43 wherein the first work section is sized to support a keyboard and the second work section is sized to support a computer monitor.

45. The work surface of claim 44 wherein the first work section forms a generally trapezoid shape.

46. The work surface of claim 45 wherein the second work section forms a generally triangular shape.

47. An adjustable work surface for use by a worker comprising:

a first work section having a top surface defining a plane, a bottom surface, a front edge adjacent the worker and a back edge;

a second work section having a top surface defining a plane, a bottom surface, a first edge and a second edge;

a third work section having a top surface defining a plane, a bottom surface and a first edge;

a first hinge member connected to the back edge of the first work section and the first edge of the second work section; and

a second hinge member section connected to the second edge of the second work section and the first edge of the third work section, the first and second hinges being made from a resilient material whereby the first work section, the second work section and the third work section may be angularly positioned relative to one another.

48. The work surface of claim 47 wherein at least one hinge section has a downwardly directed groove extending substantially the length of the hinge section.

49. The work surface of claim 50 wherein at least one hinge has a centrally located aperture sized to allow a wire to pass therethrough.

50. The work surface of claim 49 wherein at least one hinge has an aperture located adjacent an outer edge of the hinge and a slit extending from the

aperture to the outer edge, the aperture is sized to allow a wire pass therethrough.

51. The work surface of claim 47 further comprising an arm support member connected to the front edge of the first work section and extending outward therefrom in a direction toward the worker, at least a portion of the arm support member being made from a resilient material.

52. The work surface of claim 51 wherein the arm support member forms a curved pocket is created in which the worker may be positioned.

53. The work surface of claim 51 wherein the arm support member forms an angled pocket is created in which the worker may be positioned.

54. The work surface of claim 51 wherein the first work section is sized to support a keyboard, the second work section is sized to support reading material and the third work section is sized to support a computer monitor.

55. The work surface of claim 54 wherein the first work section has a generally rectangular shape with the second edge having an arcuate portion therein, the second work section and the third work section also having a rectangular shape, the second work section forming a narrower rectangle than the third work section.

56. A work surface for use by a worker positioned adjacent the work surface comprising:

a primary work section having a top surface, a bottom surface and a front edge adjacent the worker;

an arm support member connected to the front edge of the primary work section and extending outward therefrom in a direction toward the worker, at least portion of the arm support member being made from a resilient material, the resilient portion of the arm support member having a bladder therein; and

an inflation means attached to the bladder to adjust the pressure within the bladder whereby the stiffness and/or the shape of the arm support member may be adjusted.

57. The work surface of claim 56 further comprising a deflation means attached to the bladder to decrease the pressure within the bladder.

58. The work surface of claim 57 wherein the inflation means includes a secondary bladder within the resilient portion of the arm support member, an inlet valve means connecting the secondary bladder to an external fluid source and an interior valve means to pass a fluid from the secondary bladder to the bladder.

59. The work surface of claim 58 wherein the inlet valve means and interior valve means comprise a ball and a spring.

60. The work surface of claim 58 wherein the inlet valve means is attached to a side wall of the arm support member.

61. The work surface of claim 58 wherein the deflation means extends from a bottom surface of the arm support member.

62. The work surface of claim 58 wherein the deflation valve means comprises a stop member having an angled neck portion and a spring.

63. The work surface of claim 58 wherein the second bladder has substantially smaller area than the bladder.

64. The work surface of claim 57 wherein the fluid is air.

FIG. 1

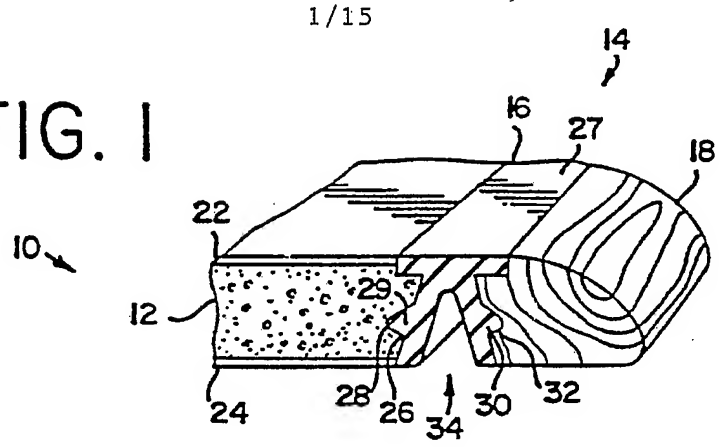


FIG. 2

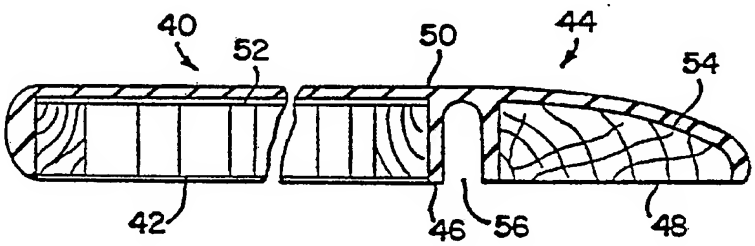


FIG. 3

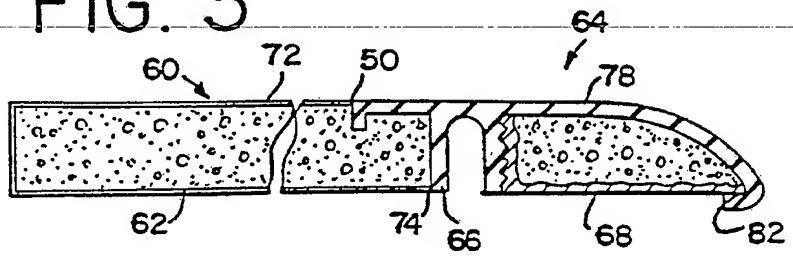


FIG. 4

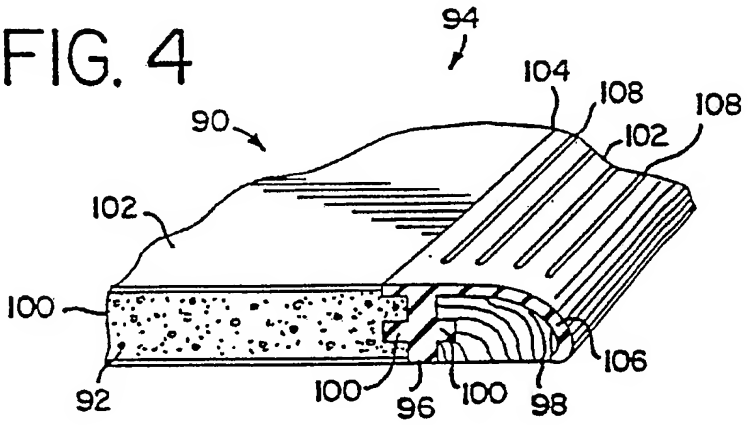


FIG. 5

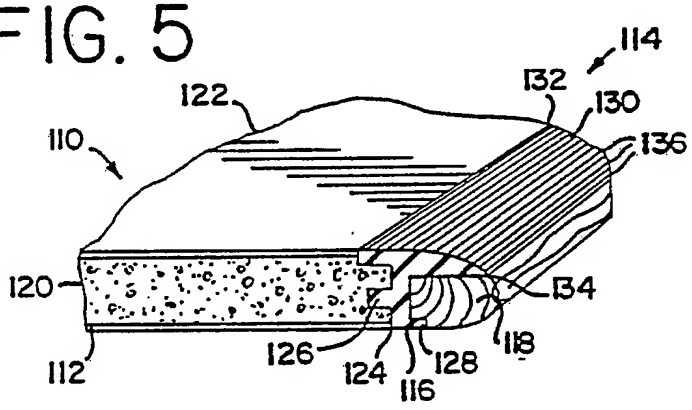


FIG. 6

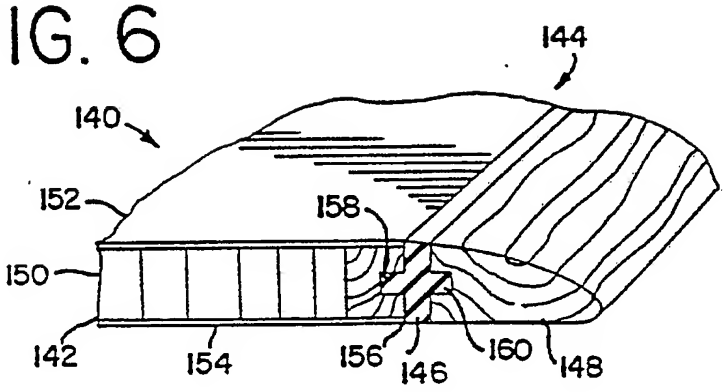


FIG. 7

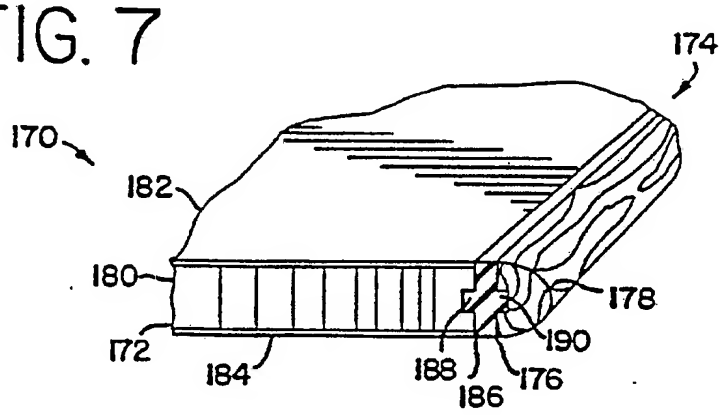


FIG. 8

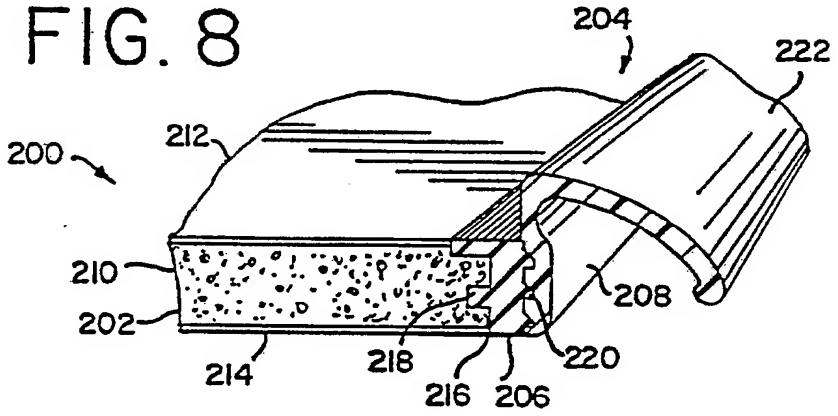


FIG. 9

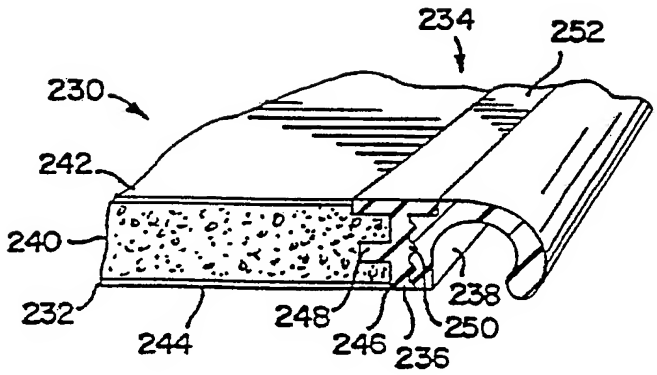


FIG. 10

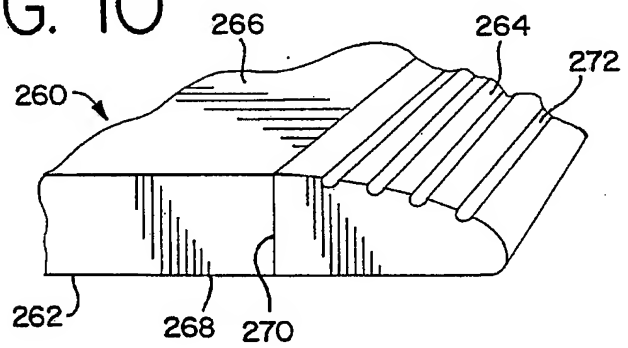


FIG. 10A

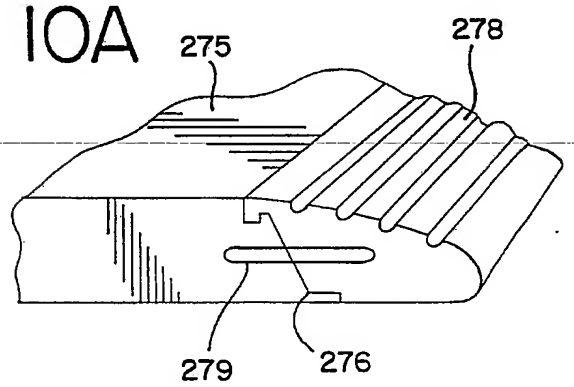


FIG. 10B

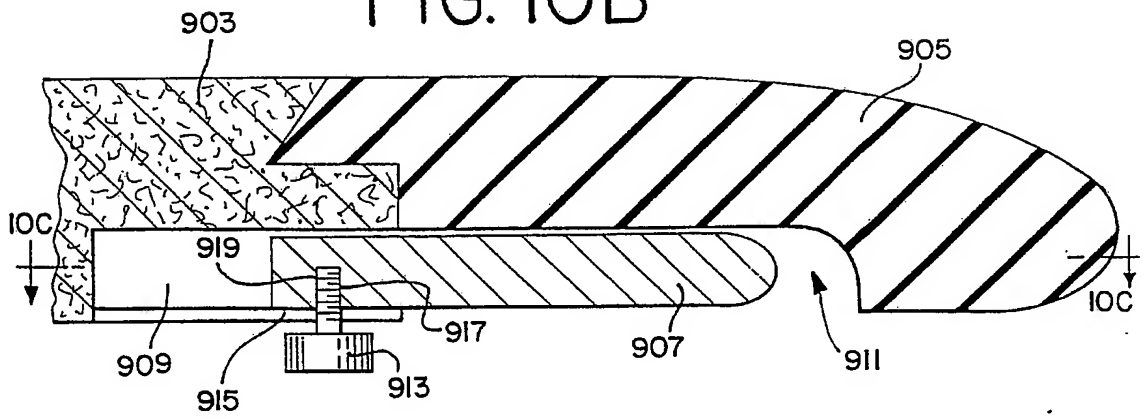


FIG. 10C

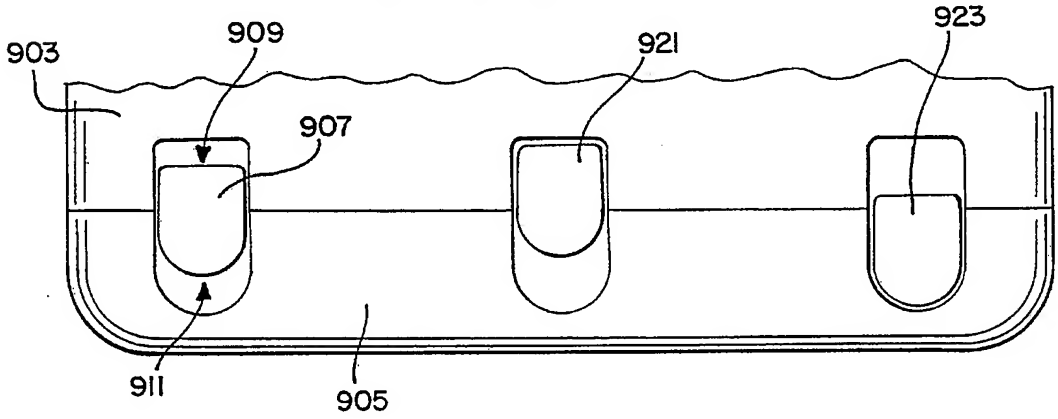


FIG. 10D

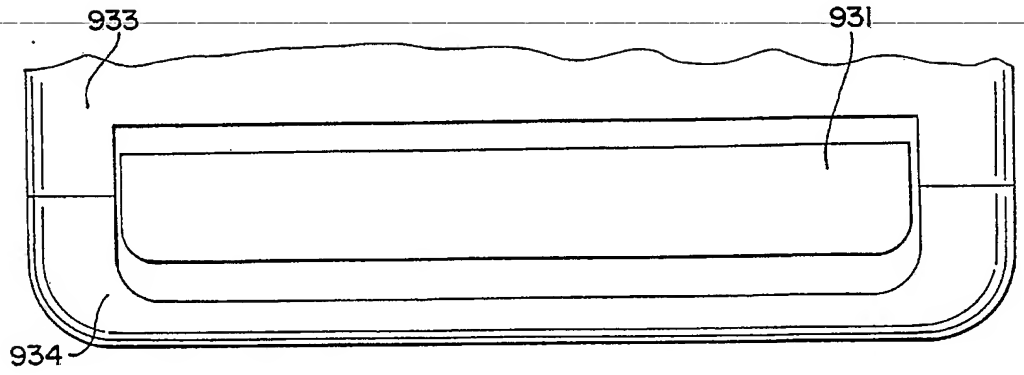


FIG. 11

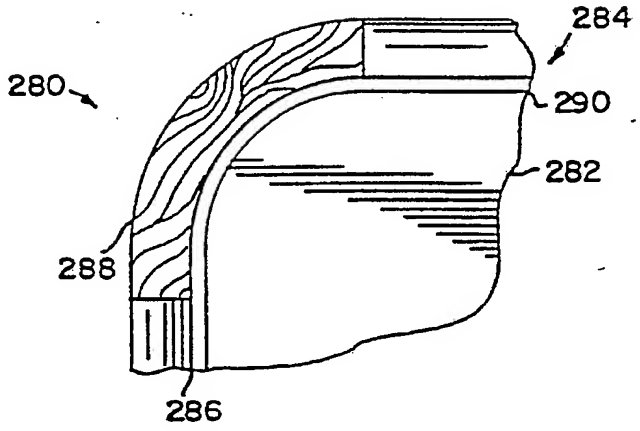


FIG. 12

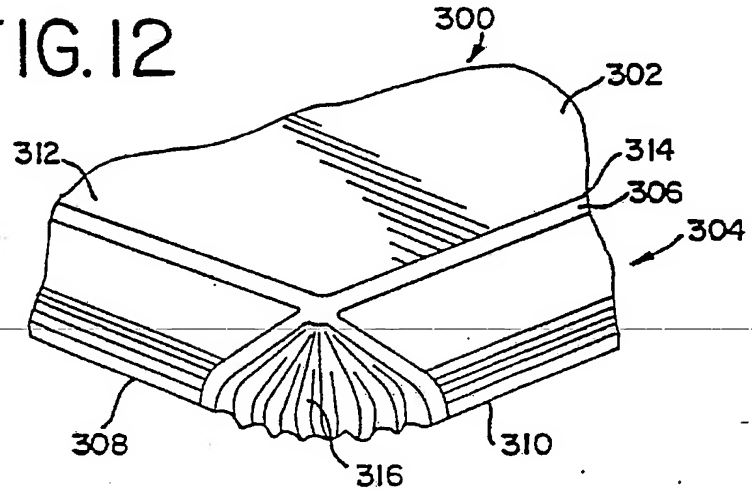


FIG. 13

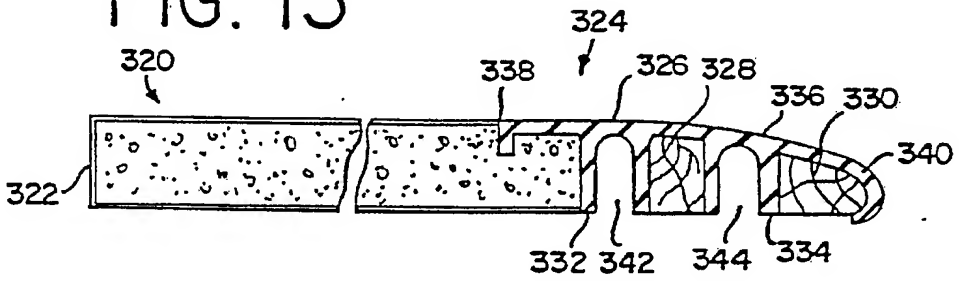

320
324
338
326
328
336
330
340
322
332
342
344
334

FIG. 14

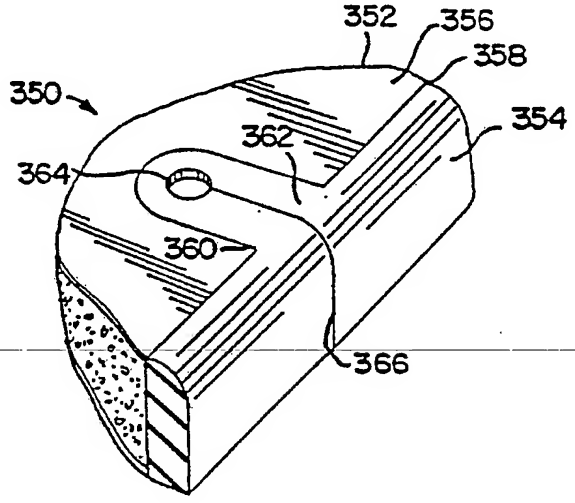

352
356
358
350
354
362
364
360
366

FIG. 15

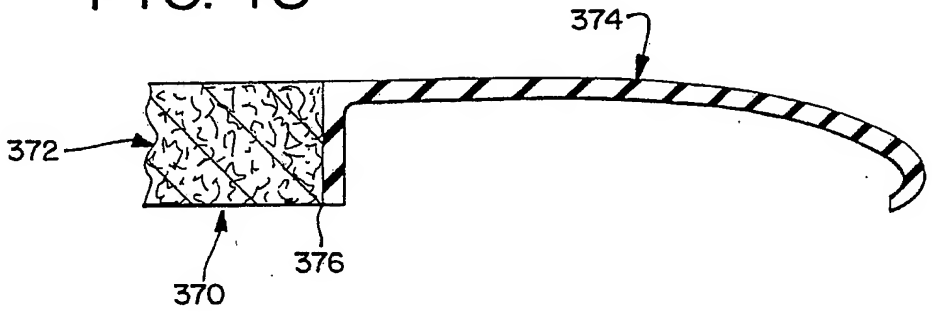


FIG. 16

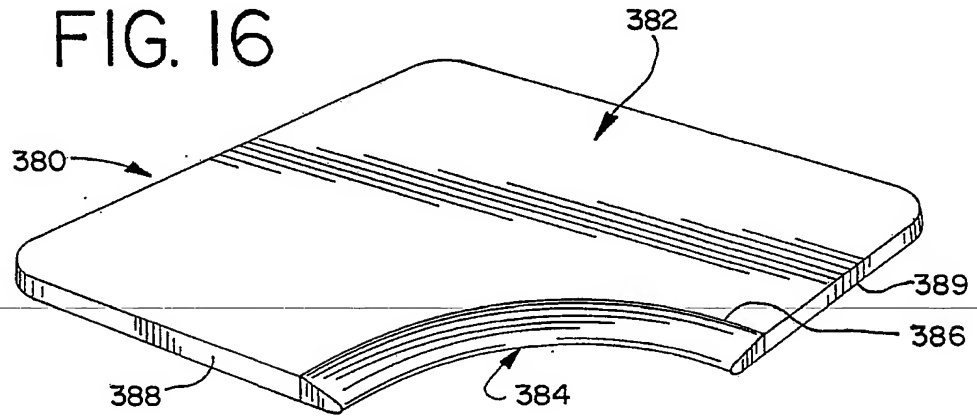


FIG. 17

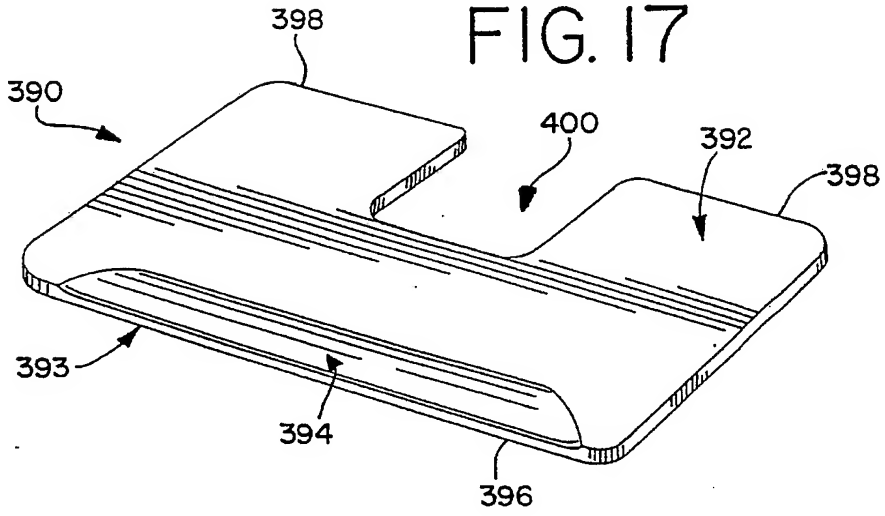


FIG. 18

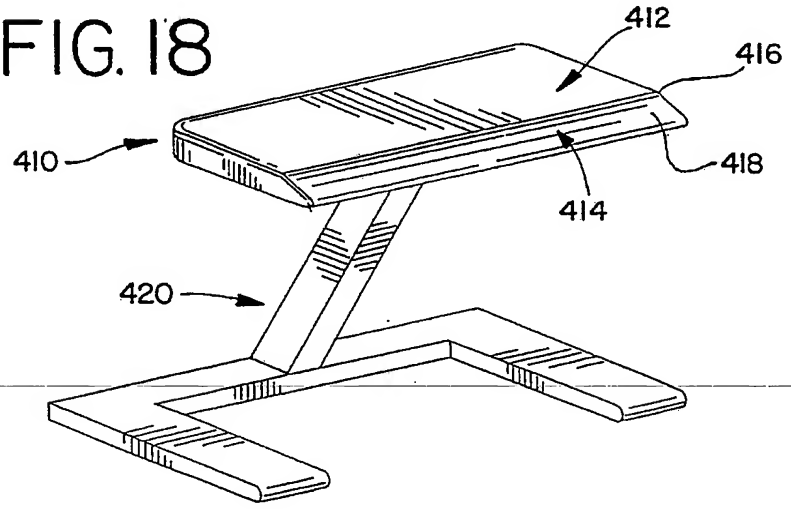


FIG. 19

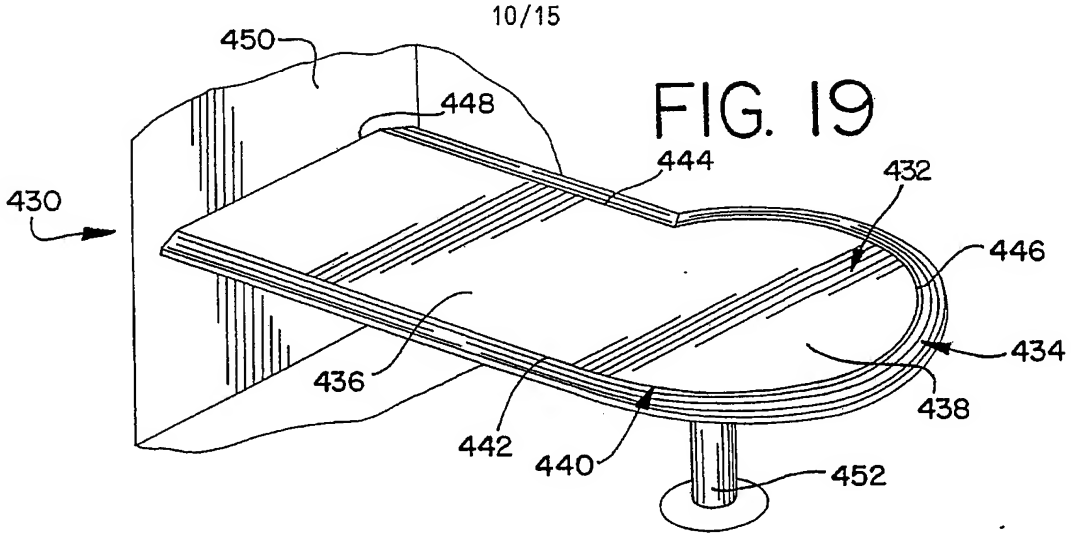


FIG. 20

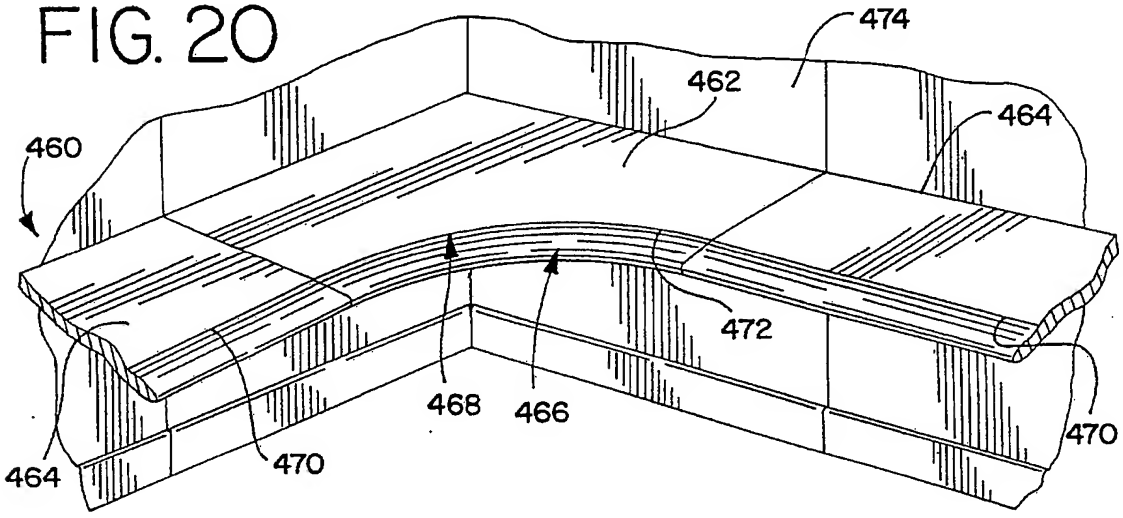
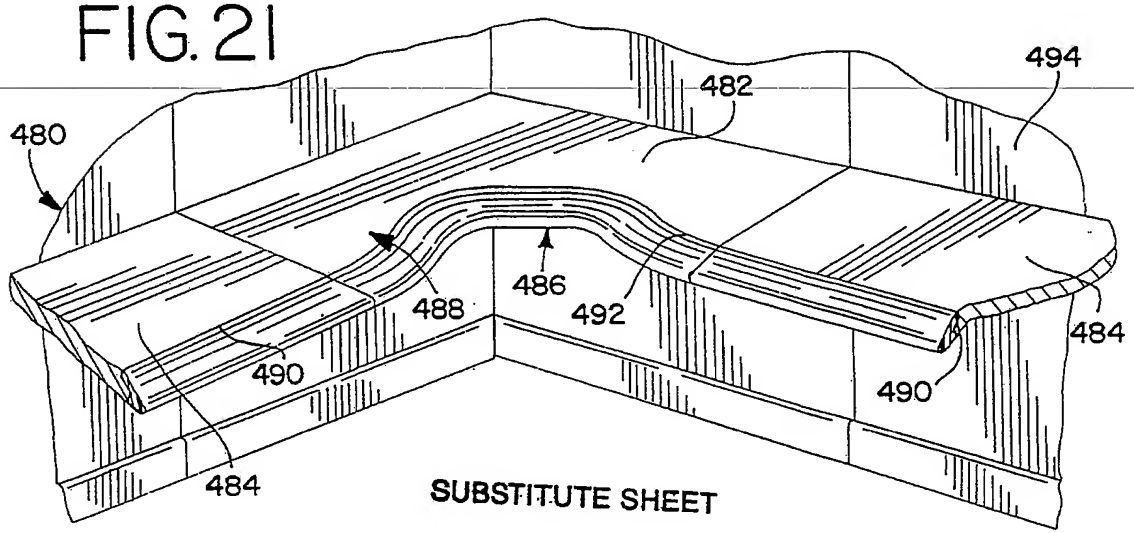


FIG. 21



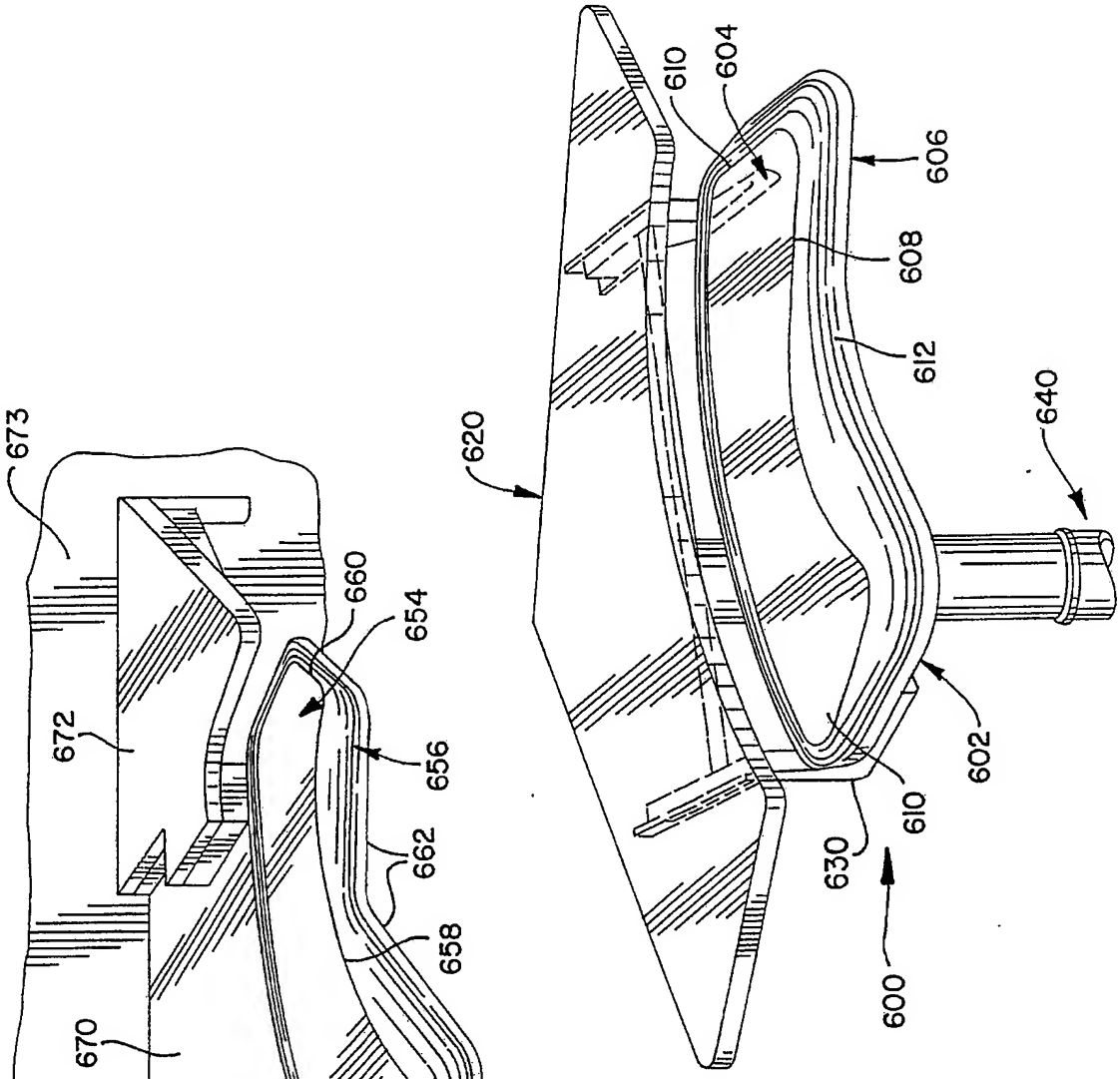

610
604
606
608
612
640
620
602
610
630
600

FIG. 22

673
660
654
672
656
662
658
670
652
650
660
672

FIG. 23

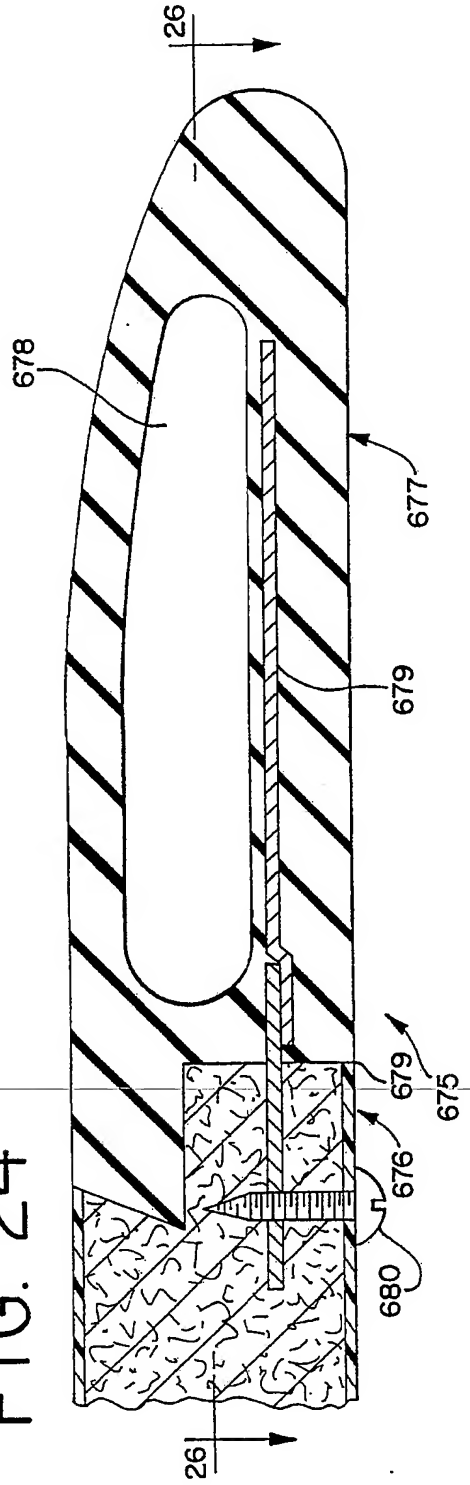


FIG. 24

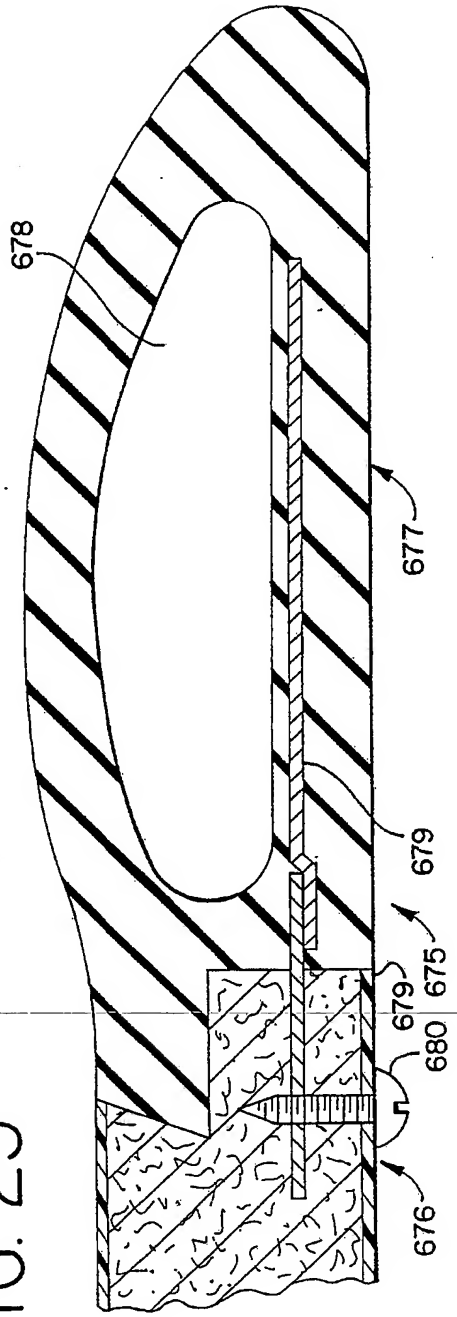


FIG. 25

FIG. 26

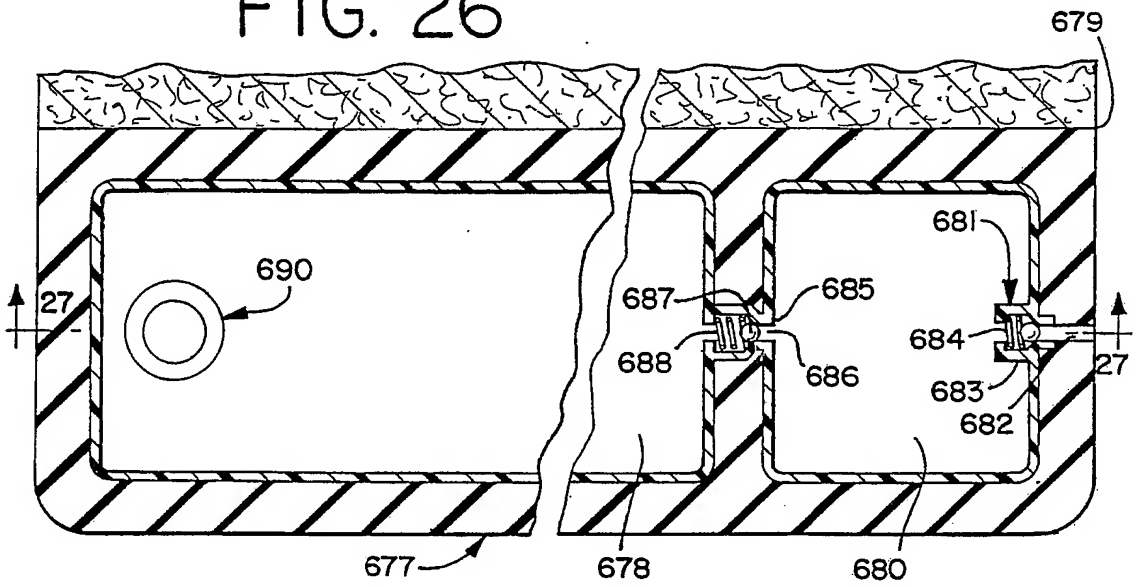


FIG. 27

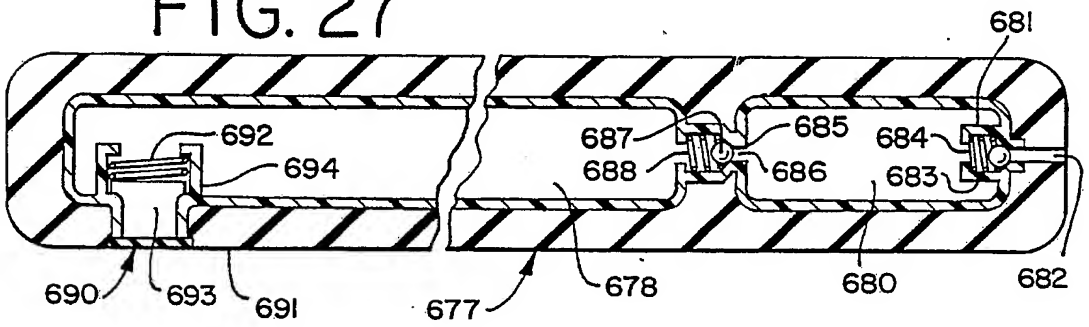


FIG. 28

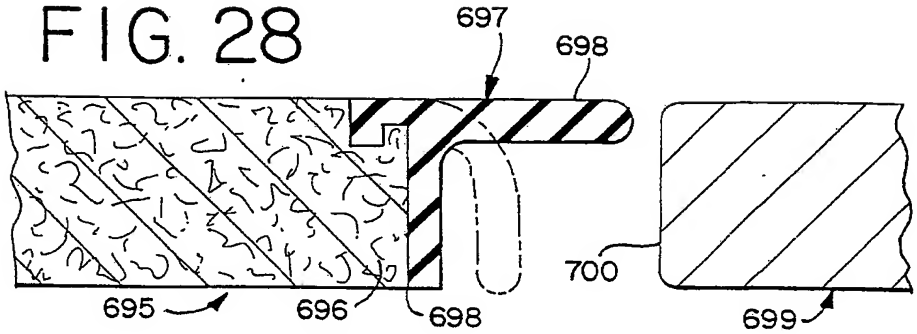


FIG. 29

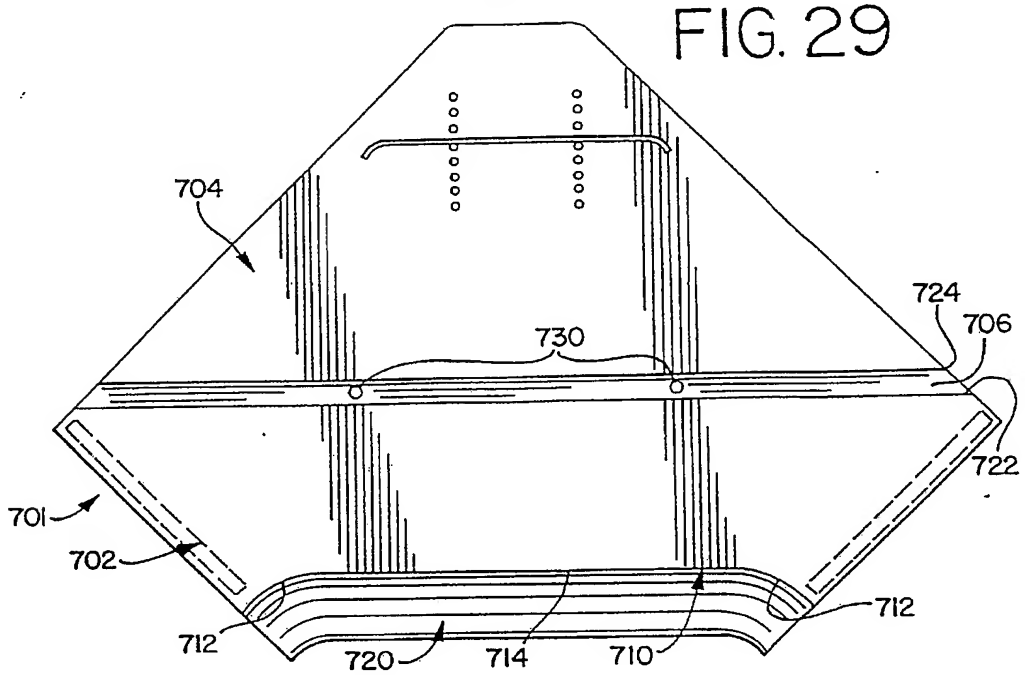

704
724
706
730
722
701
702
712
712
720
714
710

FIG. 30

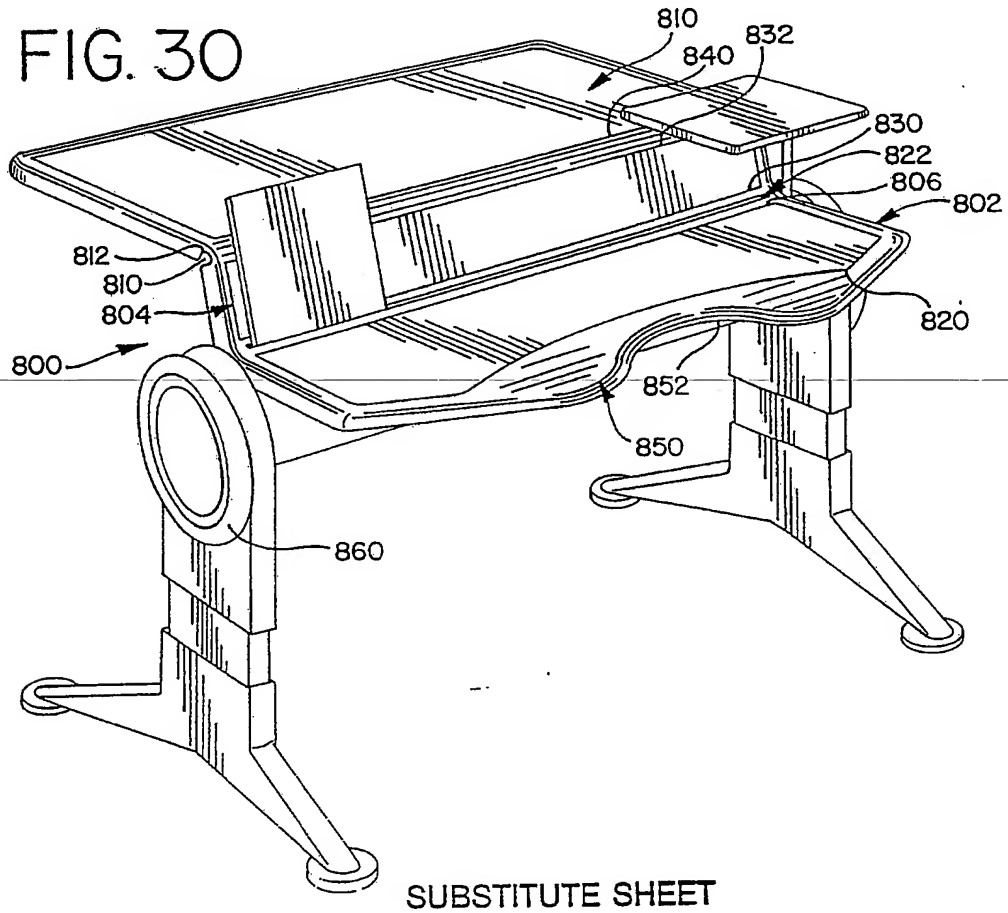

810
840
832
830
822
806
802
812
810
804
820
800
852
850
860

FIG. 31

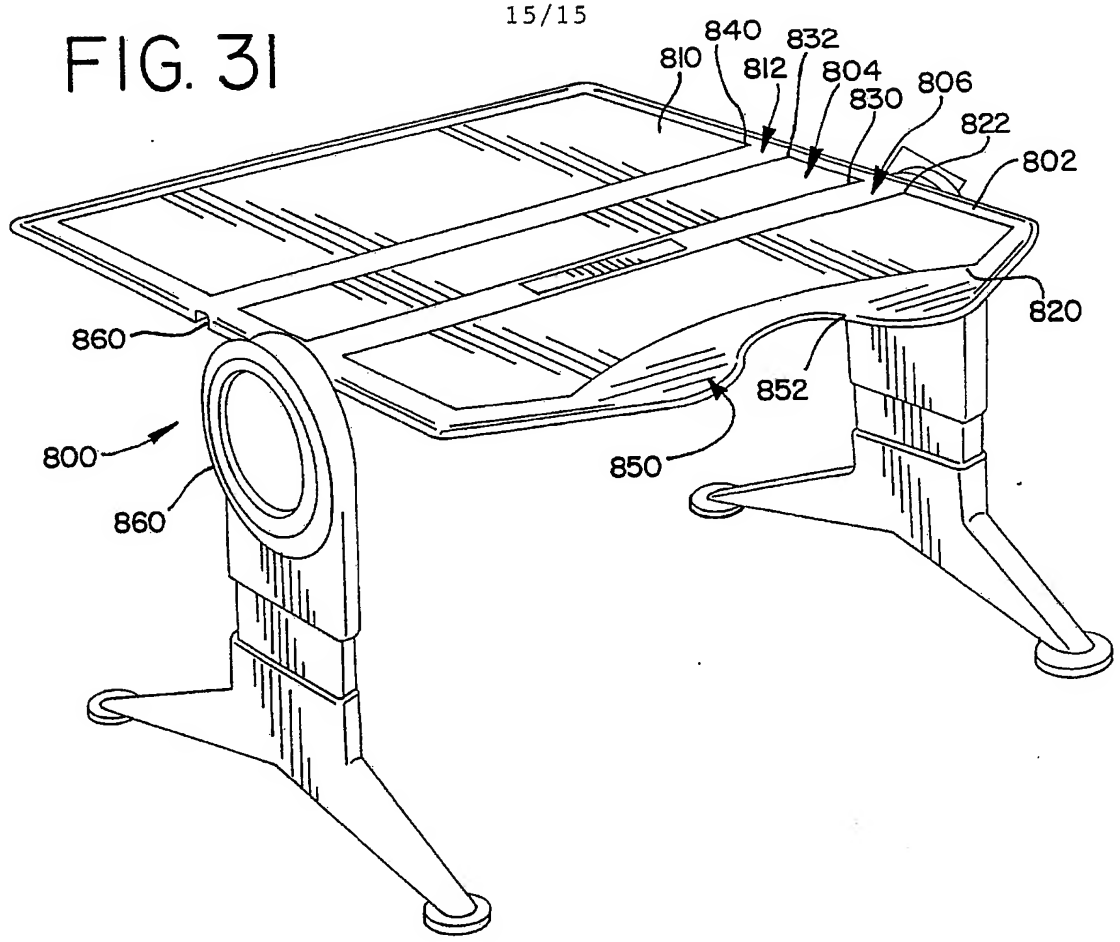
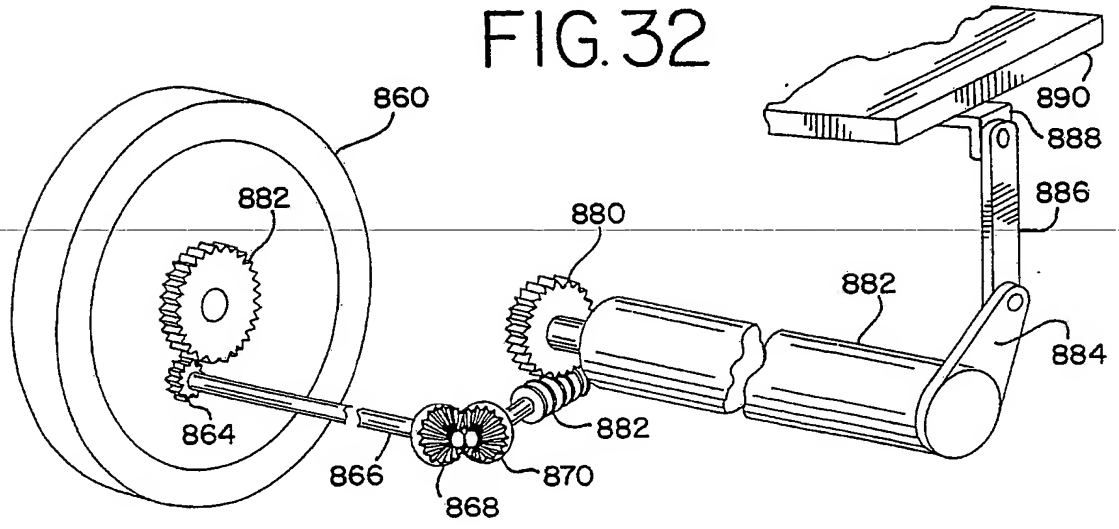

840
832
810
812
804
830
806
822
802
820
860
852
800
850
860

FIG. 32


860
890
888
882
880
886
882
884
864
882
866
870
868

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US93/03881

A. CLASSIFICATION OF SUBJECT MATTER

IPC(5) :Please See Extra Sheet.
US CL :248-118; 108-27; 312-140.3
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 248-118.1, -118.3, -118.5, -345.1, -615, 918; 312-137, -140.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

None

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

None

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y --- A	US, A, 3,300,250 (Dollgener et al.) 24 Jan. 1967 US, A, 3,300,250 US, A, 3,300,250	1,18,19,22, 23,25 --------- 26-28 --------- 56-64
X --- Y	US, A, 4,563,381 (Woodland) 07 Jan. 1986 US, A, 4,563,381	1,2,3,19, 22,23,38, 39 ----- 4,18,20,21,24-28

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be part of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
08 JULY 1993

Date of mailing of the international search report
10 SEP 1993

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231
Facsimile No. NOT APPLICABLE

Authorized officer
CLARK F. DEXTER
Telephone No. (703) 308-1148

Form PCT/ISA/210 (second sheet)(July 1992)*

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US93/03881

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X —	US, A, 4,670,938, (Fowlston) 07 June 1987	1,2,3,19, 22,23,38, 39
Y	US, A, 4,670,938	4-18,20,21, 24-28
X —	US, A, 4,799,727 (Robbins et al.) 24 Jan. 1989	1,2,3,19, 22,23,38, 39
Y	US, A, 4,799,727	4-18,20,21, 24-28
X —	US, A, 4,808,451 (McCue et al.) 28 Feb. 1989	1,18,19,22, 23,25
Y —	US, A, 4,808,451	26-28
A	US, A, 4,808,451	56-64
X —	US, A, 4,810,550 (Gasser) 07 Mar. 1989	1,18,19, 23,25
Y —	US, A, 4,810,550	26-28
A	US, A, 4,810,550	56-64
X —	US, A, 4,911,971 (McCue et al.) 27 Mar. 1990	1,18,19,22, 23,25
Y —	US, A, 4,911,971	26-28
A	US, A, 4,911,971	56-64
X —	US, A, 5,013,596 (Kessler) 07 May 1991	1,18,19,22, 23,25
Y —	US, A, 5,013,596	26-28
A	US, A, 5,013,596	56-64

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US93/03881

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- A	US, A, 5,040,684 (Knowles) 20 Aug. 1991 US, A, 5,040,684	1-4,7-9,12, 13,22,23, 28,39,47, 48 ----- 5,6,10,11, 14-17,26- 29,51-55
X --- Y	DE, A, 017,622 (Hoffer) 22 Dec. 1955 DE, A, 017,622	1,2,3,19, 22,23,38, 39 --- 4-8,20,21, 24-28
X --- Y	DE, A, 1,575,105 (Draftex, Ltd.) 18 Apr. 1967 DE, A, 1,575,105	1,18,19,20, 22-25 ------- 26-28
X	US, A, 2,291,430 (Ingersoll) 28 July 1942	35-37
Y	US, A, 3,057,001 (Rapata) 09 Oct. 1962	35-37
X	US, A, 3,229,026 (Sulzer) 11 Jan. 1966	35-37
Y	US, A, 3,366,356 (Fisher) 30 Jan. 1968	35-37
Y	US, A, 3,523,156 (Phillips, Jr.) 04 Aug. 1970	35-37
X --- Y	US, A, 4,053,701 (Ogilvie et al.) 11 Oct. 1977	35-37 ------- 36
Y	US, A, 4,268,947 (Hile) 26 May 1981	35-37
X	US, A, 4,289,923, (Ebert) 15 Sept. 1981	35-37
X	US, A, 4,977,412 (Komori et al.) 11 Dec. 1990	35-37
Y	DE, A, 3,524,278 (Daimler-Benz AG) 15 Jan. 1987	35-37

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US93/03881

(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Western Electric Technical Digest No. 8, Oct. 1967, Hardy, Split, Grommet, p.21-22	35-37

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US93/03881

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.: 49,50
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

Claim 49 and 50 are incomplete since claim 49 depends from claim 50, and claim 50 depends from claim 49.

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
(Telephone Practice)
Please See Extra Sheet.

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US93/03881

A. CLASSIFICATION OF SUBJECT MATTER:
IPC (5):

B43L 15/00 A47B 13/08
248-118; 108-27; 312-140.3

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING
This ISA found multiple inventions as follows:

Group I - Claims 1-34 and 38-64 are directed to the resilient arm rest classified in Class 248, subclass 118 and have the special technical feature of a resilient hinge supporting an arm support member.

Group II - Claims 35-37 are directed to the wire access channel classified in Class 174, subclass 48 and have the special technical feature of a resilient section having an aperture and a slit extending therefrom to an end of the section.

Groups I and II are directed to two separate inventive concepts and each group has a different technical feature. The inventions are not linked in operation and perform completely different operations.

Claims 1-34 and 38-64 appear to be drawn to the main invention.

Group I does not have the special technical feature of Group II and Group II does not have the special technical feature of Group I.